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Physicians' Perceptions of Administrative Intervention in Medical Practice in Edmonton, Alberta (1996)

by

Sarah Jeanne Wall

A thesis submitted to the Faculty of Graduate Studies and Research

in partial fulfillment of the requirements for the degree of

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Date: March 25, 1997

To Danny, Chloe and Olivia

ABSTRACT

Fast-paced health care reform, coupled with an increasing focus on the business aspect of health care delivery, has placed greater power in the hands of administrators and government leaders as directors of the change process. This has emphasized the different values and perspectives of administrators and physicians. Physicians, traditionally autonomous practitioners, dominant in the health care hierarchy, have found these changes to be unpleasant.

The intent of this thesis was to explore physician attitudes toward administrative intervention in medical practice in Edmonton. The results of the study indicate that Edmonton physicians perceive a moderate, negative impact of the recent health reforms, are intolerant of government-imposed limits on medical practice and moderately accepting of monitoring. Several factors which contribute to physician acceptance of administrative control were revealed.

Suggestions for working cooperatively with physicians toward administrative goals are offered. Future research is recommended in this area.

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CHAPTER 1

INTRODUCTION TO THE STUDY

The profession of medicine has won itself a highly esteemed position in the social order of western developed societies. Studies of occupational prestige have found that physicians are ranked very highly in comparison to many other occupational groups (Treiman, 1977; Nakao and Treas, 1991). In this century, physicians have achieved professional dominance and professional autonomy, both in the Canadian health care system and internationally. Conservative politics in the 1990's emphasize the business aspect of health services delivery, focusing on efficiency, controlling practice variation and, therefore, cost and quality. The increasing presence of managers in health care clearly challenges the role of the physician as an autonomous, self-directed professional. Rapid, government-driven restructuring of Alberta's health care system has placed greater power in the hands of administrators and government leaders as overseers and directors of the change process. Physicians have found these changes to be both unfamiliar and unpleasant.

Health Care Delivery in Alberta

The organization of the health (illness) care system in Edmonton, Alberta has changed dramatically in the past three years. Nationally, calls for changes such as these came as early as the 1970's in Royal Commission reports which advocated for regionalization and an increasing focus on community health initiatives (Meilicke and Storch, 1980). The motivation for embarking on health care reform in Alberta came from a variety of sources. The single most significant stimulus for health reform has been extreme concern regarding rising health care expenditures

coupled with questionable gains in health outcomes. "From 1980 to 1992, health spending rose 215%. Even considering the growth of population and inflation at 17% and 63% [respectively], this rate of growth was not sustainable" (Alberta Health, November 1996). Public expectations for fiscal accountability were whipped up as part of an attack on the provincial deficit. An aging population, demands for greater consumer involvement in health matters and advancing technology are also cited as rationales for reform (Alberta Health, 1994). In 1993, the Government of Alberta developed a set of recommendations for the future of the provincial health care system. These recommendations were to set in motion a turbulent period of restructuring.

In the initial stages of reform, aggressive spending reductions were mandated. Annual decreases ranging from 114 million dollars to 287 million dollars were targeted for a total reduction in spending of 749 million dollars over four years or 20% of a four billion dollar budget (Alberta Health, 1994). Government strategies for meeting these financial goals were to have far-reaching impact on the health care system, some of them affecting physicians more directly than others. These strategies included:

1. Establishing regional health boards (Regional Health Authorities), comprised of government-appointed "non-stakeholders" (i.e. not doctors).
2. Rationalizing and restructuring of diagnostic service provision, including laboratory services to reduce overlap, duplication and unnecessary services.

3. Introducing a "physician resource management strategy", not clearly defined.
4. Introducing clinical practice guidelines for specialized and high volume services.
5. Experimenting with alternative payment arrangements for practitioners.
6. Reducing acute care beds by over 40% by closing and down-sizing hospitals.
7. Rationalizing specific programs to one site.
8. Increasing day surgery.
9. Reducing the number of hospital admissions and average length of stay; increasing home care.
10. Seeking reductions in payments made to physicians. (Alberta Health, 1994).

By 1996, at the time that this research project was conducted, most of these strategies had been implemented. Edmonton's total health budget has been reduced by 13.2 percent since 1993. Initial budget reductions were greater as this figure includes an infusion into the Capital Health budget of forty-one million dollars late in 1996 (Edmonton Journal, April 5, 1997). Responsibility for the structure and delivery of health services now belongs to seventeen Regional Health Authorities and two Provincial Health Boards (Cancer and Mental Health). The Edmonton region is Region 10, with the regional board known as the Capital Health Authority (Alberta Health, November, 1996). These regional boards have replaced over 200

separate boards and administrations in an attempt to reduce administrative overhead by 20% (Alberta Health, November, 1996).

Diagnostic services, particularly community-based services, have been reorganized dramatically. Prior to restructuring, most physicians' offices had their own laboratories and x-ray facilities or shared these with other practitioners in the same building. Currently, 150 of these have closed and twenty-four remain to serve the patients of physicians within a certain geographic radius (Region 10 Medical Staff, Oct. 22, 1996). Hospital-based diagnostic and therapeutic services have also been affected, with major technologies consolidated at one or two sites. In Edmonton, acute care beds have been reduced to 1650 (in early 1996) from 2016 in 1995 and 2551 in 1994 (Capital Health Authority, Annual Report, 1996; Region 10 Medical Staff, Oct. 22, 1996). Five years ago, the average provincial bed ratio was 4.3 beds for every 1000 residents. Currently, Edmonton has 1.5 beds for every 1000 people, including those that come for care from outside of the Capital Health region. Interestingly, the target bed ratio, specified by Alberta Health, is 2.4 beds for every thousand residents (Edmonton Journal, April 4, 1997).

Health care programs have been rationalized as well, involving the physical movement of physicians, staff, equipment and patients to new sites. For example, in Edmonton, pediatrics, ophthalmology, gynecology and obstetrics, intensive care and palliative care, among others, have been transferred to different sites. There has been a sharp increase in the use of day surgery and physician's admission and length-of-stay rates are closely monitored (Human Resources Accreditation Committee, Jan. 22, 1997). Three of the Capital Health Authority's full-service

hospitals (Misericordia, Grey Nuns and Sturgeon General) have been downgraded to Community Health Centres. Although they offer full emergency services, inpatient services are limited to low intensity patients in a limited number of specialty areas. High intensity care (trauma, most intensive care and high technology medical and surgical care) is now offered at the Capital Health Region's two major referral centres, the University of Alberta Hospital and the Royal Alexandra Hospital. The Charles Camsell Hospital, a full-service acute care facility, was closed, and its programs and staff merged with the Royal Alexandra Hospital.

Clinical practice guidelines for specific procedures have been developed and implemented in the region's hospitals. Guidelines include expected length of stay and outline the typical resource use of a particular patient type (such as antibiotics and physiotherapy services). Physicians may deviate from these protocols if they are able to provide justification for the exception.

Average length of stay in hospitals has decreased from 7.2 days in 1993/94 to 5.6 days in 1995/96, a reduction of 22.2% (Region 10 Medical Staff, Oct. 22, 1996). Shorter hospital stays have shifted care to the community, causing an increase in demand on community-based services. Financing for these services has moved in the direction of the patients--out of the hospitals and into the community. "Funding for community-based services has increased by over $110 million in the past three years. Funding for home care has increased by 300 percent since 1990" (Alberta Health, November 1996). Medical critics of this trend consider it to be an offloading of costs to patients, contending that home care funding is inadequate and

that costs are often borne by patients and their families (Region 10 Medical Staff, Oct. 22, 1996).

In the midst of all these changes, attempts made by the government to reduce the amounts of payments to physicians were met with stiff opposition by the Alberta Medical Association. In the end, an alternative arrangement providing physicians with incentives to save money was agreed upon, although this plan has not yet been implemented.

Physicians' Reactions to Changes in the Health Care System

Changes such as those experienced in Edmonton, however well-intended, are disruptive to health care providers. Edmonton's physician groups have made their feelings well-known regarding the changes to the system. For most of 1996, media battles raged over the crisis situation in Edmonton's health system. In April of that year, the Medical Staff Advisory Board of the University Hospital sent a memorandum to the Capital Health Authority, indicating that the hospital was "no longer able to fulfill its obligations to ensure that the quality of care at the site is maintained, that patient safety is not compromised and that accepted standards of access to care is applied" (Edmonton Journal, Aug. 1, 1996). In early July, 1996, Alberta Health announced that it would provide an additional seven million dollars to the Capital Health Authority to enhance patient-care services. Judging this funding to be basically inconsequential, 350 of Edmonton's approximately 1700 doctors attended a July 30, 1996 meeting to discuss the crisis in health care. Doctors speaking at the meeting said they were "fed up" and "not going to sit back and take this anymore". The state of the health care system was called a "disgrace", and the

government's claims that the system was not in crisis was referred to as "an evil propaganda campaign" (Edmonton Journal, July 31, 1996). Statistics showing long waiting lists for both urgent and elective surgery were offered to substantiate the claims of physicians (Edmonton Journal, August 1, 1996).

In October, 1996, the Region 10 medical staff released the report of their critical assessment committee. The purpose of the document was to identify and categorize the main problems with the health care system, from the perspective of physicians and other health care providers, and to suggest solutions. The report outlines numerous examples of gaps in health care delivery in Edmonton pertaining to various programs, individual physicians and individual patients. The report is largely anecdotal in nature and presents some unsubstantiated claims. As well, although it acknowledges that many of the problems in the system are multifactorial, it proceeds with attempts to link all existing problems in the health care system to recent restructuring. However, despite the shortcomings of this report, it clearly demonstrates that provider dissatisfaction is high and that physicians perceive tremendous defects in the post-reform system.

Government officials and the Capital Health Authority have responded that the doctors were being alarmist and that by all objective measures the system was actually providing more service and meeting higher demands, with less money, than three years earlier. The waiting list statistics were dismissed as outdated, having been collected in 1995. According to a publication by Alberta Health in November 1996, waiting lists are not a result of restructuring but are a normal part of a managed health system where people with the greatest need are treated first. It is

worth noting that waiting lists are not a reliable indicator of demand for health services. They are open to tampering by physicians who may "stack" the waiting list to "prove" that the system is stressed. Waiting lists may also include patients who have requested a position on the list in preparation for future need. The document also points out that spending reductions were canceled for the 1995-1996 fiscal year and that spending had actually increased by 197 million dollars over the year previous. Citing a poll of Albertans, Alberta Health indicated that 86 percent of people who had used the system in the last twelve months considered the quality of their health services to be good or excellent. Responding to concerns about the movement of physicians away from Edmonton and Alberta, Alberta Health has called the loss of physicians "very short term" and has indicated that the total number of physicians in Alberta had actually increased by five percent (Alberta Health, November, 1996). Generally, the government and regional board were critical of the alarmist tactics of the regional medical staff.

The Purpose of this Research Study

This research project focuses on the impact of increasing levels of bureaucratic or government regulation in health care on Edmonton physicians. Clearly, there is a certain level of concern surrounding the recent changes to Edmonton's health services. However, what is less clear is the reaction of physicians. This research explores the nature of physician-management relationships. Unfortunately, previous research in this area is either old or originates from the United States. Current, Canadian research on this topic is completely lacking.

From an administrative point of view, examining the attitudes of physicians toward organizational structure and government involvement will help to ensure that the goals of health services are being met by all players. An understanding of the impact of administrative intervention and control over medical practice can assist planners and administrators to implement change more effectively.

Objectives and Hypotheses

To explore physician-management relationships, a survey of a representative sample of Edmonton physicians, based on specialty, was undertaken in order to access their general level of tolerance for increasing administrative control, more specifically, the impact of the recent organizational reforms in the Capital Health region. As well, this study attempts to identify whether specific groups of physicians are more inclined to accept these changes. The hypotheses of this research are as follows:

H_1 : Physicians in general will indicate a high lack of tolerance for bureaucratic intervention in their practices.

H_{1A} : The more invasive the administrative measures, the less tolerant the physician's response. (eg. interference with income levels versus arm's length involvement such as monitoring).

Physician intolerance is expected because physicians are accustomed to being in control of decision-making as it affects both their patients and their practices. Monitoring may not interfere as directly with a physician's independent decision-making process.

H_2 : The type of physician's practice will influence his/her acceptance of bureaucratic involvement.

H_{2A} : Physicians more closely tied to hospital-based practice will report feeling more greatly impacted by health reforms and less tolerant of administrative control strategies than community or office-based physicians.

Health care reforms have primarily targeted acute care services. It is, therefore, anticipated that the opinions of physicians associated with hospitals will reflect this impact.

H_{2B} : Physicians more accustomed to working in group practice settings will be more accepting of administrative controls.

Physicians working in group settings establish their own bureaucratic structures to ensure the efficient functioning of their practices. Because of this, it is expected that these physicians would be more familiar with and accepting of bureaucracy and administrative influences.

H_3 : Physicians with exposure to or involvement in administration will demonstrate a greater tolerance for administrative priorities.

H_{3A} : Physicians with academic appointments will be more familiar with and, therefore, more accepting of bureaucratic involvement.

H_{3B} : Physicians with prior or current experience in an administrative role will have a greater appreciation for administrative involvement in medical practice.

H_{3C} : Physicians with formal training in administrative principles, either in medical school or through continuing education, will show a greater level of tolerance toward administration.

Academic physicians relate not only to the bureaucracy of the hospitals in which they practice, but also to the administration of the faculty of medicine. Further, it is expected that physicians with administrative experience or administrative training will have a broader perspective and an understanding of administrative principles and priorities than those without this exposure.

H_4 : Physicians who have practiced in countries other than Canada will differ from those who have not in their level of acceptance of administrative controls.

Physicians with international practice experience have been exposed to health care delivery systems which are different from that of Alberta. It is anticipated that physicians with this exposure will compare their different practice experiences and be inclined to perceive the situation in Edmonton differently from their colleagues without international experience.

H_5 : As the physician's age increases, tolerance for administration and change will decline.

This outcome is foreseen due to the tendency of human beings to become less accepting of change as age increases.

H_6: Female physicians will express greater tolerance than male physicians for administrative intervention in medical practice.

Research suggests that females are more relational and have a greater desire to meet with the approval of those in authority. Males are more likely than females to approach conflict with aggression (Lefrancois, 1984, p. 388).

The Organization of the Thesis

This chapter has offered an overview of the current situation in the health services delivery system in Edmonton, Alberta. Rapid, politically and fiscally driven restructuring of health services delivery in Edmonton has had an impact on physicians. Because of the dramatic changes and the apparently strong reaction from regional physicians, there is a need for research into physician-management relations in Edmonton. This study explores this relationship in light of physician characteristics such as specialty, type of practice, administrative experience, academic status, age, gender and international practice experience.

Following this introductory chapter, a review of the literature in Chapter 2 expands on the context in which physicians operate. Concepts discussed include the rise of medical dominance in Canada, physicians' practice patterns, medical education and physicians and bureaucracy. Also contained in Chapter 2 is a review of studies involving physician surveys.

The methodological foundations for this research project are provided in Chapter 3. The use of a survey design is justified, sampling procedures are outlined and techniques used to prepare the data for analysis are explained.

The results of the data analysis are contained in Chapter 4. Statistics used range from descriptives to linear regression and look at physicians as a group as well as in sub-groups.

Conclusions, recommendations and directions for future research are offered in the fifth and final chapter.

CHAPTER 2

LITERATURE REVIEW

Medical Dominance

For many years it has been widely accepted that the medical profession holds a position of dominance in the medical division of labour. Medical dominance was documented in detail by Eliot Freidson in 1970 in his books entitled *Professional Dominance* and *Profession of Medicine*. At the core of Freidson's theory is his definition of a profession. When an occupation is known as a profession, it implies that it has certain distinguishing features which differentiate it from other occupations. (Blane, 1982, p. 213). Firstly, professions possess a body of specialized knowledge and seek to expand on that knowledge base through research. Secondly, professions have a monopoly over the practice of their work. Thirdly, they are self-regulating and self-evaluating. Finally, a professional occupation is guided by a code of ethics which describes their ideology of commitment to the service of their client. (Blane, 1982). Different professions in health care enjoy very different levels of power. In fact, according to Freidson, the other health care professions, such as nursing, are actually paraprofessions because there are few things that they can do to a patient except when under orders from a physician. Hence, the central tenet of Freidson's concept of profession is "its autonomy, the ability to be the sole definer, controller, and evaluator of what its activities should be and how well they are performed" (Goldstein and Donaldson, 1979, p. 333).

While professional autonomy is a factor in the rise of the medical profession to a position of dominance, control over the work of others is an important factor in

determining the level of power the profession holds. In the medical model of health services delivery, currently dominant in Canada, the "lesser" professions are able to give care to their patients only through instruction from physicians. Such professions exist only to assist physicians with their work of healing the patient.

> "It might be noted that paraprofessional occupations usually seek professional status by creating many of the same institutions as those which possess professional status. But what they persistently fail to attain is full autonomy in...actually performing their work. Their autonomy is only partial, being secondhand and limited by a dominant profession" (Freidson, 1970, p. 76).

The esteem with which the public views the medical profession reflects physician dominance in the health profession hierarchy. The work of the profession is unlikely to be singled out unless it pertains to some of the important beliefs or values of society (Freidson, 1970, p. 73). The ability of physicians to restore health and alleviate suffering is highly valued by members of society and physicians are, therefore, afforded power.

From another point of view, the asymmetry of information between the physician and the patient explains medical dominance. Asymmetry of information arises when the seller of a service (physician) has more information than does the consumer (patient) about the value or utility of the service. Because a physician has a great deal more knowledge of medical matters than the average patient, the physician is given the upper hand and placed in a position of power or dominance over the patient who consults him or her. Aysmmetry of information exists in the physician-administrator relationship, as well. The highly specialized knowledge of a

physician gives him the authority to be the gatekeeper of the system, determining what services are necessary and appropriate (Evans, 1984, p. 369).

The Rise of Medical Dominance in Canada

According to Edginton, the medical profession has always been self-serving and has directed its own rise to a position of power. "Its motive in restricting entry to the practice of medicine was not to protect the health of the population (by eliminating quacks), but to create a medical monopoly" (1989, p. 137). In Canada, in the latter part of the 1800's, the non-medical healers provided the greatest challenge to the leadership of the medical profession. The questionable efficacy of homeopathic medicine, along with the passage of legislation in 1869 giving "regular" doctors the right to self-regulate and self-evaluate, secured the role of dominant practitioners for physicians. The development of scientifically-based medical training schools in Canada proceeded during the latter part of the nineteenth century (Coburn, Torrance and Kaufert, 1983). "The medical profession not only suppressed quacks and improved training within its own ranks, but also gained dominance over and restricted the activities of other health occupations" (Coburn, Torrance and Kaufert, 1983). By the early part of the twentieth century, physicians had secured an agreement with pharmacists which disallowed the prescribing of drugs by pharmacists, a common practice to that point. Midwifery was gradually disallowed, first in towns and then in rural areas, as hospital, physician-attended births became the norm. In an effort to gain recognition in the health care sector, nurses restricted their activities and nursing practice became subordinate to medical practice. Current efforts by nurses and midwives to establish independent practices

which allow direct access to non-physician health care providers have been met with strong resistance by physicians. Other paraprofessional occupations in health care have been developed more recently, such as physical and occupational therapy and laboratory and x-ray technology. By the time of their establishments, the medical profession had assumed a leadership role in the hierarchy and these occupations naturally took a subordinate place. In 1912, the passage of the Canada Medical Act standardized medical licensing in Canada. At about the same time, the Flexner report on medical education was released which influenced improvements in medical training schools. "The hegemony of scientific medicine, based on a solo fee-for-service model, focused on individual cure, and practiced by a closed, elite circle of men, had been established" (Coburn, et. al., 1983, p. 414).

During the 1920's, the rise of technology precipitated the flow of medical practitioners into hospitals, the doctor's workshop. "Physicians became increasingly dependent on the diagnostic and therapeutic facilities which only a hospital could provide" (Roemer and Friedman, 1971, p. 35). The role of the paraprofessionals became institutionalized, as well, as physicians required assistance with their work.

Rapid change in the health care field, such as the increasing availability of technology and the development of health insurance in the years following World War II, solidified the power of the medical profession. The Canadian Medical Association became a strong collective voice for physicians as it acted in opposition to health care insurance. Despite the eventual loss of the battle against government intervention in the financial aspect of health care, physicians remained independent in all other facets of health care delivery. As well, the medical profession had

significant influence in the formulation of public health policy in Canada (Taylor, 1960).

"By the 1960's, medical dominance was thus institutionalized, embedded in law, administrative statute, organizational forms, and relationships and custom" (Coburn, et. al., p. 417). A provider-based medical care system was firmly established. The population began to equate health with medical care. This level of power and autonomy for physicians is still deeply entrenched today. Recent reforms to the health care delivery system in Edmonton have attempted to broaden the concept of health to include social factors, prevention and community health. However, the public continues to define quality health care by the availability of hospital-based medical care.

Practice Patterns of Physicians

In Canada, most physicians operate as private practitioners. A typical model is the solo practice in which the solo practitioner attracts and retains patients and assumes full responsibility for office overhead and on-call coverage. To more easily manage these demands, many physicians elect to form group practices. The most common type of group practice is an association in which doctors generally remain independent from each other with regard to the content of their work but form a business partnership in order to minimize cost and time spent performing tasks other than the exercise of clinical judgement. As Freidson (1970) noted, physicians in solo practice operate largely without contact with their peers. Group practices change the way physicians practice medicine. The increasing organization of medical practice leads to the emergence of bureaucratic characteristics. These

include definition of roles and procedures, hierarchical organization, communication and co-ordination of information, supervision and the use of economies of scale. "The association represents the first step away from personal autonomy and toward...regulation" (Wolinsky, 1982, p. 401). Physicians create bureaucracies in order to share resources and enhance their own skills. In medical bureaucracies, or group practices, they allow themselves to be the subjects of peer review. It is interesting to note that physicians do not resist bureaucracy and evaluation when it is self-created.

When establishing their practices, physicians, including those in Alberta, are able to choose the type of practice situation that best suits their personal preferences and characteristics. Among the characteristics that influence choice of practice are personal attributes, sociodemographic characteristics and environmental characteristics. Personal traits that affect a physician's choice are desired level of autonomy, preference of earnings potential, desire to practice with friends, preference for a particular geographic location and predictability of hours. A doctor's sociodemographic characteristics such as age, gender, marital status, and medical specialty will influence the choice of practice situation. Finally, a physician will choose to practice in a favourable environmental setting. Affluence of the population, number of doctors in the area and ease of access to hospital facilities are examples of environmental influences in the choice of practice setting (Wolinsky, 1982).

The most important point to remember is that the majority of physicians in Canada are private medical practitioners and are therefore free to make independent

decisions. Medical practitioners are often subjected to demands outside of their control, not the least of which is the completely unpredictable nature of illness. However, these freedoms accurately describe a profession which is largely under its own direction and control. Edmonton physicians have much of the freedom of choice described above, although choice of practice location and hours of work have been removed from their control to some degree as a result of system restructuring.

Medical Education

"Physicians, by and large, are solo entrepreneurs...defensive, and fearful of sacrificing the relatively high income, autonomy and social position that society has historically led them to expect" (Greifinger and Bluestone, 1986, p. 95). While these traits may be softening in response to the times, the socialization process that is part of medical education perpetuates these expectations. Medical education, including pre-medicine, is entirely scientific and largely medical in content. The focus is on primarily biomedical sciences, with a preference for scientifically-proven facts, tightly-linked causal relationships, and meeting the immediate medical needs of the patient (Shortell, 1991, p. 13).

An expectation of dominance and autonomy results from the current process of medical education. Medical "training prepares physicians to work relatively independently of their colleagues, although closely with the patients they serve, and to exercise considerable discretion in applying their learned skills and knowledge" (Fogel, 1989, p. 76). Medical students are subtly encouraged by staff physicians to use their personality to manage and control. The acquisition of medical knowledge causes a competency gap to develop between a medical student and a patient or

subordinate professional and a dominant relationship is thus formed. In the later years of medical training, the student is allowed to work and make decisions independently, fostering a sense of autonomy. "Once the student becomes a colleague, the unwritten rules of professional conduct protect individual autonomy from challenge. Deference to the person in charge of the case, non-interference by colleagues, the tendency to regard disagreements as differences of taste and style all preserve individual autonomy" (Light, 1979). It is perhaps the socialization of medical students by those already practising in medicine that is the key to the development of the characteristics of physicians. "Those in medical schools... control, codify, refine, communicate, and augment the profession's body of knowledge and skill: their activities maintain control by the profession over knowledge and technology and discourage "expropriation" by outsiders" (Freidson, 1985, p. 30).

Further, medical education provides a view of resource use that is contrary to the bureaucratic concept of cost-containment.

> "Physicians are uneducated for the practice of cost-effective medicine. The sources of physician education--medical school curricula, residency training programs, and the majority of practice arrangements--fail to demonstrate styles of medical care that explicitly address issues of cost-effectiveness. It is therefore not surprising that most physicians are ignorant of the vast potential to reduce unnecessary hospitalization, surgery, diagnostic testing, and therapeutic interventions...As a result, most physicians sincerely believe that each decision [they make] is in the best interest of each patient, and this, in turn, represents appropriate, highly valued service" (Greifinger and Bluestone, 1989, p. 95).

As a result of the medical education process, physicians emerge from training with a completely different cultural perspective than health care

administrators (Shortell, 1991, p. 13). The physician's focus is on the autonomous application of scientific knowledge to individual medical concerns. The ubiquitous theme of cost control in health care in the last few years has caused physicians to become more conscious of the costs associated with medical care. However, the perspectives and values of physicians remain in contrast to the use of social and management principles in the making of cost-conscious, collaborative decisions for the health of the organization and the community as whole.

Doctors in Hospitals

Since physicians first moved into hospitals to conduct their work, they "have often perceived the hospital simply as their workshop and, generally, a rent-free workshop" (Eisenberg, 1986, p. 127). Hospital management, not traditionally an area of concern for physicians, was left to trained administrators. The medical staff developed a separate, parallel hierarchical structure (Alexander, Morrisey and Shortell, 1986).

> "The basic features of medical staff organization in a hospital can be categorized under seven main headings, as follows:
>
> 1. Composition of the staff
> 2. Appointment procedure
> 3. Commitment
> 4. Departmentalization
> 5. Control committees
> 6. Documentation
> 7. Informal Dynamics" (Roemer and Friedman, 1971, p. 87).

In other words, the medical staff organization is responsible for granting privileges, appointing the senior medical staff and maintaining quality and standards in patient care, medical education, documentation and quality of working life.

Traditionally, the formal responsibilities of the medical staff organization in the hospital pertain almost entirely to the work of the physicians and not to other administrative and business issues. The parallel structures of the medical staff and the hospital administrative hierarchy "are largely separate rather than symbiotic in their functioning and are not designed to foster conjoint efforts" (Shortt and Bukowskyj, 1994, p. 6). That is not to say that physicians are not concerned or involved in certain administrative aspects of a hospital. Despite the fact that there is traditionally no formal link between the medical staff structure and the administrative structure of the hospital, physicians are able to have tremendous influence over hospital policy. In some instances, physicians in a hospital report directly to the governing board rather than the chief executive officer (Shortt and Bukowskyj, 1994, p. 6).

In Edmonton, physicians continue to operate with a significant degree of separation from direct management control. Greater integration of the medical structure and the administrative structures was attempted with the establishment of program councils. These councils, responsible for program planning and management, are comprised of representatives from a variety of health care occupational groups, including physicians. Unfortunately, these councils have had not been as successful as anticipated and are being re-evaluated.

Physicians and Organizations

Hospitals and other organizational structures in health care are bureaucratic in nature. The concept of a bureaucracy was first defined by a sociologist, Max

Weber. In Weber's definition, bureaucracies are characterized by the following dimensions:

(a) a hierarchy of authority
(b) a strict chain of command from top to bottom
(c) an elaborate division of labour
(d) technically qualified personnel
(e) detailed rules, regulations, policies and procedures
(f) position and incumbent are separate
(g) impersonality
(h) written communication and records (Daft, 1983, p. 126)

According the Weber (Daft, 1983), bureaucracies possess the characteristics necessary for efficient organizational functioning and effective resource allocation in an increasingly complex society. Well-defined rules and policies create clear expectations, reduce uncertainty and protect management and employees from whimsical or arbitrary decisions. However, bureaucracies have been criticized because they tend to over-control, thereby stifling freedom and creativity. "The mixing of professionals and bureaucracy causes a conflict, because professionals desire freedom from bureaucratic rules and authority" (Daft, 1983, p. 146).

Organizations in which the primary or core tasks are performed by professionals such as physicians, are known as professional bureaucracies. They differ from ordinary bureaucracies since administrators are not the sole possessors of authority and power. Power is given to the managers of a professional bureaucracy as long as it does not encroach on the professional's area of expertise and autonomy. Administrative control must be loosely maintained and remain distanced from the actual functional work of the organization. In fact, an effective form of control in a professional bureaucracy is peer review. (Fogel, 1989, p. 78).

"Whereas, generally speaking, most other workers have been quickly and easily corporatized, physicians have been able to postpone or minimize this process in their own case" (McKinlay and Stoeckle, 1988, p, 197). It is true, as noted earlier, that physicians in hospitals have developed their own form of bureaucracy. Elaborate rules in the form of medical staff bylaws, specialized positions with defined responsibilities such as the Medical Director or Chief-of-Staff, a pyramidal hierarchy, departmentalization into medical specialties, and policies for record-keeping are characteristics of both medical staff organizations and bureaucracies (Freidson, 1985, p. 20).

Physicians practicing in the Capital Health Region (Edmonton) are subject to these rules and guidelines as they relate to credentialing, reporting relationships and evaluation (Capital Health Authority, Human Resources Policy Accreditation Committee, Minutes, Jan. 22, 1997). However, the physician in the hospital is not part of the whole bureaucratic machine of the hospital in the same way as the rest of the hospital staff. They are usually not employees and their structure exists parallel to, rather than within, the hierarchy of the organization, without threat to medical authority, autonomy and self-governance.

"The physician is not an Organization Man...Bureaucratic control is a real threat to medicine" (Martin, 1975, p. 977). Physicians fiercely protect their autonomy and closely guard their traditionally dominant position over patients, administrators and other health care providers. Their autonomy and dominance are firmly entrenched socially and culturally as well as legally. Complete independence over their treatment of patients and patterns of practice is expected and has been

generally granted. The rules, regulations and requirements for accountability that characterize bureaucratic organizations are foreign and frustrating to medical practitioners.

In North America, "physicians are [usually] entrepreneurs" (Martin, 1975, p. 977). As such, they are accustomed to determining their own hours of work, levels of earnings and styles of practice. These freedoms are contrary to working life within a bureaucracy especially one in which a social welfare model exists, as it does in the Canadian health care. Physicians see themselves as agents for the consumers of health care, or patients. Because the consumer may lack the level of knowledge necessary to make his own care decisions, the decision-making authority, relative to an individual, is delegated to the physician. In Canada's system, the government has also assumed an agent role, representing the interests of clients of professionals as a group in the determination of health policy. Medical professionals may perceive themselves as the only agents for health care consumers, failing to realize that the state is a legitimate representative of client interests on a different level (Tuohy and O'Reilly, 1992, p. 75).

As a result of their perspective, physicians generally tend to favour the free market in health care (which gives full discretion to the physician in the care of clients) and have a history of opposition to government or bureaucratic intervention. The move to introduce national health insurance was an important factor in the development of the power and cohesion of the medical profession, as represented by the Canadian Medical Association, as they sought to oppose government control over physicians' financial affairs. The intrusion into the "right" of doctors to set and

collect their own fees was further challenged by the Saskatchewan doctor's strike in 1962. A reaction of similar intensity was set off with the release of the Hall Report in 1980 which recommended an end to extra-billing. The report prompted the then President of the Canadian Medical Association to state that "[if extra-billing is banned] doctors will be part of a monolithic state enterprise. Bureaucrats will dictate how medicine ought to be practised" (Globe and Mail, Sept. 4, 1980). Following the passage of the Canada Health Act in 1984 and the subsequent Ontario Health Care Accessibility Act, the Ontario Medical Association "constantly battled against Health Minister Begin's crusade to ban extra-billing" (Taylor, 1987, p. 451). Calling the passage of the Act "Nazism" and "Communism", the doctors began a twenty-five day strike that closed doctors' offices and emergency wards in Ontario (Taylor, 1987, p. 451).

Provincial governments have made attempts to limit or redistribute the supply of physicians. "They have adopted measures such as immigration controls, reductions in first-year medical school enrolments, differential payments under the government insurance plan to newly-licensed physicians who locate in "under-serviced" or "over-serviced" areas, and (in British Columbia) restrictions on the issuing of new billing numbers." While these policies did not challenge established physicians, they were resisted by medical associations as a matter of principle. (Tuohy and O'Reilly, 1992, p. 90). "The majority of the medical profession continues to hold to the defence of entrepreneurial discretion... within the institutions of private fee-for-service practice (Tuohy and O'Reilly, 1992, p. 86-7).

In addition to the independence and entrepreneurialism which typifies the medical profession, the content of medical education and the nature of the work causes a conflict between medical practitioners and bureaucratic organizations. Physicians tend to be micro or individual level thinkers.

> "Micro concerns have historically involved individual physicians' interest in caring for individual patients. Resources necessary to provide this care are expended by the physician without regard to the needs of their other patients or of other physicians' patients" (Alexander, et. al., 1986, p. 222).

This perspective should not necessarily be considered a fault. It has arisen out of the desire to give the best care possible to patients. It is, however, an important trait to consider when attempting to understand the physician-organization relationship. Conversely, administrators are concerned with macro issues. "Managers are oriented to...the overall well-being of the organization in which the care is delivered" (Alexander, et. al., 1986, p. 222). Optimal allocation of scarce resources to maximize benefit to all is their primary concern.

In a related vein, physicians have a science bias. The process of medical education, discussed earlier, builds on a natural inclination toward the scientific rather than the social. (Martin, 1975). This keeps physicians focused on disease, treatment and research rather than larger organizational issues.

As with most professions, medical practitioners are largely self-evaluating. For physicians, this concept is reality much more so than for other health care providers working as part of a bureaucratic organization. Peer review remains the predominant form of evaluation for doctors. The formal reporting structure of a

bureaucracy can subject physicians to review by those outside of the profession, an unfamiliar and unpleasant situation for physicians.

At present, Edmonton physicians generally fit this pattern. Physicians are governed by Medical Staff Bylaws which lay out rules and regulations regarding topics such as appointment, qualifications and competencies and discipline. These bylaws are developed and administered by the medical staff. Medical Quality Audits are performed on the hospital charts of physicians in order to identify variances in the use of diagnostic and treatment services, lengths of stay and patient outcomes. Individual physician practices can be monitored, although reporting is often done on an aggregate rather than individual basis (for example, the department of surgery will receive a collective report). These audits are under the control of the medical staff organization of each institution (Minutes of Capital Health Authority [CHA] Human Resources [HR] Policy Accreditation Committee, January 22, 1997).

Approximately 35% of community-based physicians in Edmonton have no connection to a hospital and are, therefore, not subjected to review or evaluation of any type (CHA, HR Policy Accreditation Committee, Jan. 22, 1997). For this reason, among others, the College of Physicians and Surgeons of Alberta is undertaking a pilot initiative in which 300 physicians in Alberta are asked to provide the names of ten peers, ten patients and ten allied health professionals who in turn submit their individual assessments of that particular medical practitioner. This expands the scope of physician evaluation to include those outside of the medical profession (College of Physicians and Surgeons of Alberta, 1996). Initial results indicate that this program will be successful and that profiles of physician

performance created from questionnaire data are reliable (Edmonton Journal, Mar. 24, 1997).

A final concept in the area of physician evaluation is the monitoring of billing and prescription patterns, an initiative which is beginning under the authority of Alberta Health Care Insurance. Feedback to individual physicians will be provided as well as follow-up and remediation if necessary (Minutes of CHA, HR Policy Accreditation Committee, Jan. 22, 1997).

Challenges to the Status Quo

To this point in time, medicine has developed into an autonomous, entrepreneurial profession, with a scientific focus on individual patients. However, recent reforms in health care have challenged each of these characteristics and bring to bear questions about the role and characteristics of physicians in the future.

Alberta's health care system is undergoing massive change. High anxiety about provincial and federal debt has sparked rapid restructuring in health care. A business focus in health services delivery, with its accompanying increase in managerial control, will indeed have an impact on physicians' practices.

The entry of the government into the financing of health care was an attempt to deal with the issue of patient *access* to the health care system. However, the effect of this government intrusion was to remove incentives for organizational improvement. As well, initial reimbursement formulas left the funding of health care services "open-ended". This ultimately led to the shift in emphasis from access to cost-containment that is being experienced in the health care industry at present (Tuohy and O'Reilly, 1992).

Regionalization, occurring in most Canadian provinces, is, ostensibly, an attempt to correct some of the deficiencies in the system, thereby curbing costs. These include uncertainty with regard to the efficacy of care provided and uncoordinated service delivery at the regional level. As ideas regarding system re-design are discussed and decisions are made, physician spokesmen contend that "physicians are the group best qualified to design and evaluate health service networks" (Sutherland and Fulton, 1992). Given that the focus of their training is micro-level and scientifically-based, and that it generally lacks content of an administrative nature, one must question the validity of this assertion.

Physicians themselves have advocated the use of data to monitor quality and effectiveness. As discussed earlier, medical audit programs, medical care standards, and physician-written policies regarding their practices in hospitals have been in place for some time. However, these programs are physician-controlled and do not threaten professional autonomy, at least in the aggregate. An increase in administrative and government control over the practices of physicians has caused tension between managers and the medical profession. Health care reform, generally involving regionalization, has placed a new level of public management over the health care system. In Alberta, regionalization has produced seventeen Regional Health Authorities, including the Capital Health Authority. Control over the management of all sectors of health care (public health, home care, extended care and hospital care) belongs to the regional board and management. At the forefront of regionalization is the move to rationalize services. With the transfer of certain medical specialties between hospitals, physicians' practice and referral

patterns have been interrupted. Managers and government contend that duplication of services wastes scarce resources and that rationalization, while requiring adjustment to change, will not affect quality of, or access to, care (Capital Health Authority, 1995).

With an expanding focus on outcome measurement and cost containment through the effective use of resources, physicians decisions are increasingly subjected to outside control and evaluation. Managed care and clinical practice guidelines are gaining popularity in health services management. Managed care involves the identification of expected outcomes, time frames and resource use for a specific type of case. Expected processes and outcomes are defined by clinicians familiar with the particular diagnostic category. Once a guideline is in place, variations from the norm can be identified and evaluated (Etheredge, 1989, p. 3-4). For example,

> "at outpatient clinics at two New York City hospitals, computers monitor the treatment of children in light of mandated treatment procedures that have been specified for 85 percent of the patients' complaints. If the computer shows that a physician has not followed them, then he or she must justify that deviation to medical superiors. It is not that a physician cannot deviate, but that deviation must be formally justified by reference to a common body of practice that is considered to be a legitimate norm...It was noted that since the system was instituted there has been a sharp drop in the prescription of antibiotics for the treatment of colds and flu" (Freidson, 1985, p. 28).

As mentioned in Chapter 1, clinical practice guidelines or care maps for certain, high-volume procedures, such as joint replacement surgery, have been implemented in Edmonton hospitals. As in the example of the New York hospitals, physicians in Edmonton may deviate from the care map guidelines provided they are able to offer justification. The use of this type of managerial control over physicians' practices is

becoming wide-spread in Canada as a way of defining appropriate levels of care, thereby controlling costs. It is often, however, perceived by physicians as "a new conflict of interest between...economic objectives...and the medical needs of patients" (Relman, 1994, p. 13).

Physicians are indeed facing challenges to their traditional power. Furthermore, the conflict of care versus cost (physician versus administrator) will surely intensify as medical technology advances and the gap between all that could be done for a patient and the resource constraints widens. As well, the aging of Canada's population will further strain the health care system as we know it (Tuohy and O'Reilly, 1992).

Physicians' Attitudes Toward Bureaucratic Control

While much of the literature regarding physicians is historical, descriptive or theoretical in nature, a few research studies involving physicians have been done over the years which directly or indirectly examine administrative/physician relationships.

In an older American study by Engels (1969), the relationship between bureaucratic structure and the degree of professional autonomy within that structure was examined. Physicians working in three different practice settings, each with varying degrees of bureaucratic structure were included in the study. The degree of bureaucratization of each setting was determined by noting the number of levels in the organizational hierarchy, the use of rules and regulations, the availability of expensive technology and the level of consultation among peers. The three areas were determined to represent three levels of bureaucratization: non-bureaucratic

(solo or small group practice), moderately bureaucratic (privately owned medical organization) and highly bureaucratic (government medical organization). Questions were asked of physicians in these practice settings (response rate 42%, n=684) pertaining to their level of autonomy. Interestingly, a low level of bureaucracy was not associated with a high perception of autonomy. In fact, respondents were more likely to rate their autonomy as low or medium when working in a non-bureaucratic setting. As might be expected, physicians working in a highly bureaucratized organization claim to have very low professional autonomy. Most interesting, perhaps, is the finding that physicians working in moderately bureaucratic situations report a high level of autonomy with respect to clinical practice and research. This suggests that there is an optimal and acceptable level of bureaucracy for physicians. As was mentioned earlier, bureaucratic structure may be necessary to allow physicians to conduct their work. Adherence to professional standards and access to technology and the assistance of allied health professionals are enhanced by bureaucracy. The findings of Engels' study support this notion.

A study of one hundred, randomly sampled, Ontario physicians by Tuohy (1974), classifies physicians by their political perspectives and then examines their attitudes to administrative intervention in medical practice. Interviews with the selected physicians revealed two main ideological groups: protectionist and liberal (p. i). Both groups possessed the characteristics of commitments to service, science, individualism and collegiality. For the conservative protectionists, these commitments require the continuance of the traditional, self-regulatory roles of physicians in regard to the content and delivery of medical care (p. ii). The liberals,

on the other hand, are more willing to accept new institutions, such as a governmental presence, in the delivery of health care. However, most of the liberals support a decentralized, professionally and community-based planning process. Both the protectionists and the decentralist liberals display hostility toward centralized, public administrative bodies (p. ii). A small group of liberals believes that the free exercise of medical judgement must be tempered by administrative involvement in the efficient provision of health services (p. ii).

Tuohy's interviews revealed much animosity toward administrators, including, and even more so, physician administrators. It appears from her data that "liberal" physicians perceive physician-administrators to have given up their professional identities and to be unable to relate to the physician in practice (p. 175). However, physician administrators responding to this research claim to have developed a broader perspective than clinically-oriented physicians as a result of their administrative experience (p. 113).

The group identified as "decentralist liberals" was generally made up of specialists, including a handful of general practitioners with specialty certification in family practice. As well, physicians with full-time teaching appointments were highly represented in this group. Age of the respondent as well as practice characteristics were not of significance in this classification. The small subgroup of liberals who recognize the value of administrative control is, not surprisingly, primarily made up of physician administrators (p. 161).

The protectionist group, because of their belief that physicians should be sovereign, tends to demonstrate a preference for dealing with medically-trained

personnel in administration. Members of the protectionist group are largely solo practice, small-town physicians according to Tuohy's data (p. 181).

Much of the impetus behind increasing administrative involvement in medical care delivery is the need for cost-containment. For this reason, research on physicians attitudes toward cost-containment is relevant to the understanding of physician/administrative relationships. A survey of Massachusetts physicians (68% response rate, n=720) investigated physician attitudes toward the use of various technologies, procedures and services and their impacts on health care costs (Greene, et. al., 1989, p. 1966). Respondents were also questioned to determine if any had received formal training in cost-control practices. The physicians were asked if a formal course on this subject would be helpful. "The majority of physicians reported that major technologies and procedures, inappropriate ordering of diagnostic tests...and inappropriate patient admissions were perceived as very important contributors to increased health care costs" (p.1968). Agreement was stronger among generalists than specialists. Uniform lack of prior training in cost-containment measures was reported and just under half of the sample agreed that this training would be useful as part of formal medical education (p. 1966). Increasing physician age is significantly related to perceptions regarding the importance of these physician-induced costs, with older physicians generally placing greater importance on these than younger physicians. This study confirms that different physician groups will have differing perceptions regarding their contribution to health care costs. It also testifies to the lack of formal training in this

subject area for physicians. These findings have implications in the broader domain of physician/ administration relations.

In a similar study of physician attitudes toward cost and utilization review (response rate 59%, n=428), Goold, et. al. surveyed medical and surgical specialists and family practitioners in an American academic medical centre (Goold, Hofer, Zimmerman and Hayward, 1994). The overall purpose of this study was to identify physician attitudes which influence resource use. Physicians were asked questions regarding cost-consciousness, utilization review, uncertainty in the patient care process and fear of malpractice. With these attitudinal domains as dependent variables, multivariate linear regression was performed with physician age, gender, specialty, time spent in patient care and level of training as independent variables. The only contributor to lower resource use is a pre-existing cost-consciousness, the origin of which was not addressed by this study. Irritation with utilization review increased as time spent in patient care increased, indicating that those with research or teaching duties may be distanced from patient care and, therefore, feel less frustration with utilization review. Physician age appears to be negatively correlated to fear of malpractice and discomfort with the uncertainty involved in patient care. Age is not indicated as a predictor for annoyance with utilization review. Specialty group is not shown to be a predictor for physician attitudes in this piece of research.

A longitudinal survey of physicians in Pima County, Arizona, demonstrates that hospital/physician conflict has increased (Burns, Andersen and Shortell, 1993, p. 213). The region surveyed was chosen for its strong presence of managed care which led to pressure on providers to control costs. While managed care, as it is

known in the United States, has not found its way into the Canadian system to the same extent, it remains a proxy for the increasing focus on the business aspects of health care in Alberta. Physicians were asked to respond to questions dealing with traditional problems in hospital/physician relations such as how they are viewed and treated by administration, clarity of hospital goals, physician input into hospital policy, the quality of nursing and the quality of ancillary services. Questions designed to draw out concerns about the increase of competition (business principles) in health care were also used and included such areas as: physician control over medical decisions, pressure to discharge certain patients early and pressure not to use certain tests or services (p. 214). The 1985 study yielded a return rate of 54% for a total of 737 responses, while the 1990 survey produced 677 responses (40% response rate). Eighty-four physicians answered both surveys. The findings of the survey indicated that increasing emphasis on cost-containment exacerbated traditional conflicts but did not generate new conflicts in areas relating to the business of health care delivery (p. 216). The researchers also found, interestingly, that efforts to include physicians in governance and management did little or nothing to relieve physician/administration conflict. It is also worthy of note that the study revealed less overall conflict than might have been expected (p. 217). Physician characteristics associated with conflict include age, gender, involvement with management and specialty. "First, conflict is more prevalent among younger physicians. Conflict also appears more likely among female physicians and physicians involved in hospital governance/management" (p. 218). Primary care

physicians demonstrated more concern in areas dealing with competition than hospital-based specialists who felt more conflict in traditional areas.

Hospital-physician relationships were analyzed with input from both physicians and hospital administrators/governors in an interview plus questionnaire study by Shortell. Personnel from ten American hospitals were questioned on areas such as teamwork, the hospital's treatment of physicians, physician involvement in decision-making, physician autonomy and hospital-physician competition and appropriateness of managed care involvement. Questionnaire items were scaled to represent these broader categories. Averages for these scales ranged from 3.6-4.0, with 5 being the highest score possible. It should be remembered that administrators' responses are included in these scores and that the findings of the study do not represent only physician opinions.

The Medical Post conducted surveys of doctors in 1994 (international) and in 1995 (national). In 1994, over 95% of Canadian physicians agreed that developed countries must gain control of their health care expenses (p. 56). Seventy-two percent felt that government intervention seriously interfered with their practices, although almost the same number (65%) claimed that it was satisfying to practice in Canada (p. 56). Fifty-six percent reported that they had to increase their workloads to maintain their lifestyles (p. 62). Cost cuts such as hospital bed closures were said to be impairing the quality of health care by 70% of respondents, while the same number felt that it was possible to access hospital beds and to refer patients within an acceptable time frame (p. 54-5). Tolerance was low for government-imposed limitations on physician practice such as revenue limitations (50% disagreed with

this), physician placement according to population health needs (68.9% disagreed) and mandatory retirement at 65 years of age (87.8% disagreed) (p. 56, 62). "Three-quarters of physicians foresee a deterioration in practice conditions" (p. 62).

The 1995 survey was more extensive than the 1994 version, perhaps reflecting the increase in issues perceived by physicians during the year. Sixty-two percent, a slight decrease over the previous year, indicated that government policies unreasonably restricted their ability to practice the kind of medicine best for their patients (p. 68). Eighty-one percent of physicians responding felt that their incomes had not kept pace with those of other professionals (p. 71). Only 38% agreed that the only reasonable response to shrinking fees was to increase practice volume but 70% felt that some doctors encouraged patients to come for more visits than necessary in order to maintain their incomes (p. 70-1). Government monitoring of various aspects of medical practice (billing, hospital admissions, prescribing patterns and use of diagnostic tests) is irritating to between 38% and 50% of respondents (p. 68). In a section entitled "Feeling the Practice Pinch", physicians were asked if cost constraints and access to diagnostic and treatment services had affected their patient care. A large majority of physicians felt that they were still able to order necessary tests, prescribe medications, perform needed surgery and admit patients to hospital, despite cost constraints (p. 69). Support was not strong for government-imposed practice standards and most agreed that these would decrease physician job satisfaction (p. 70).

Historically, physicians have enjoyed a position of dominance, in part because of their valued skills, specialized knowledge and powerful lobby. As noted

above, medical education socializes new physicians into traditional cultural and attitudinal patterns and does not generally contain content pertaining to administrative goals such as cost control. Physicians are generally entrepreneurial and accustomed to freedom in determining their practice characteristics. Interestingly, they do choose to form groups in certain circumstances, which become bureaucratic in nature. However, even physician organization in hospitals is separate from the general hospital hierarchy. Physicians perceive that medically-created bureaucracy enables them to perform their work while organizational bureaucracy is seen as a hindrance to professional autonomy. It remains to be seen how well arm's-length administrative controls such as monitoring are received. While physicians are familiar with some monitoring, current initiatives in Alberta are likely to bring this issue to the forefront.

Studies concerning physician-organization relationships generally report conflict between these two groups. It has been demonstrated that physicians are aware of their significant contribution to health care cost generation, although they consistently lack training in this subject area. The increasing focus on the business aspects of health care delivery appears to exacerbate the traditional areas of conflict, rather than drawing attention directly to issues related to cost-control. In spite of the identified conflict between physicians and administrators, research indicates that a moderate level of bureaucracy actually enhances professional activity. It may be postulated that the objection physicians have toward administrative intervention is based on principle rather than practice. While claiming concerns about their inability to perform medicine as they see fit due to government/administration-

imposed constraints, physician protestations have not been as strong when questioned further regarding their actual practices.

CHAPTER 3

METHODOLOGY

Survey Research

Much of what is written about the medical profession and its relationship to health care management is theoretical or descriptive in nature. The objective of this study was to empirically explore attitudes of physicians as they relate to administrators. A survey approach was selected. Survey research "begins with a theoretical...research problem and ends with empirical measurement and data analysis" (Neuman, 1994, p. 225). The nature of the population in question, as well as financial considerations involved in conducting the research, led to the choice of a mail questionnaire as the data collection method. Mail surveys are cost-effective, anonymous, convenient for the respondent and can be conducted by a single researcher. "They are very effective, and response rates may be high for a target population that is well educated or has a strong interest in the topic" (Neuman, 1994, p. 242). Physicians in Edmonton, Alberta represented such a population.

The Total Design Method for survey research was developed by Don Dillman (1978). His survey research technique includes the notion that the survey is a form of social interaction in which respondents will act on the basis of what they will receive in return for their participation. Because cooperation is more likely when the required "investment" on the part of the respondent is low, this study involved the use of a very short, concise questionnaire in order to minimize the time commitment required for completion. When timed during the pilot phase, the approximate time for completion of the questionnaire was under five minutes.

Survey questionnaires were mailed with a pre-stamped response envelope so that no cost would be involved for the physicians responding. If the respondent perceives a benefit to participation in the study he/she is more likely to cooperate. The historical nature of the medical profession as presented in the literature, coupled with the rapid rate of change in Edmonton during the time of this research suggested that potential participants would find this research topic very relevant and that they would welcome an opportunity to express their concerns directly to an interested party. According to Dillman, respondents will cooperate when the researcher creates a sense of trust. Therefore, an effort was made to word the questions on the survey instrument in a way that recognized the likely negative perceptions of health reform in Edmonton without leading the respondents to answer in a particular way. Trust in the quality of the research was established by designing a clear, professional-looking questionnaire and by obtaining legitimizing sponsorship (See Appendix A for example of questionnaire and letter).

Survey Development

Key variables and concepts measured by the questionnaire included age, gender, number of years in practice, exposure to courses relating to administration, type of practice (group versus solo; hospital versus office), specialty or academic appointment (if any), attitudes regarding professional autonomy and administrator/ physician collaboration, past experience with administration, past practice in a health system with greater or lesser government or bureaucratic control, indicators of acceptance to specific initiatives, level of concern for fiscal issues and quality of care issues. Questions were derived primarily from existing samples of physician

surveys on similar topics (Burns, Andersen, Shortell, 1993; Tuohy, 1974; Medical Post, 1994 and 1995; Goold, Hofer, Zimmerman, Hayward, 1994). An initial draft of a 75-item questionnaire was submitted to a panel of ten physicians for review. Physicians on the panel included five specialists, five general practitioners, three female physicians, three physicians with academic appointments and two physician executives. These physician types are those primarily studied in the literature. Panel members were asked to evaluate the questionnaire for clarity (face validity) and comprehensiveness or representation of current issues (content validity). Members suggested only minor wording changes and all ten felt that the questionnaire content was comprehensive as well as relevant and timely. Although only two commented on the length, it was decided that in the interest of achieving the highest possible response rate, a number of the items could be combined to shorten the questionnaire. The final draft of the 40-item format was submitted to the panel, meeting with unanimous approval. The initial twelve questions dealt with demographic information such as age, speciality and academic status (if any), type of practice and remuneration and exposure to administration either through training or experience. The remaining questions were statements concerning various aspects of government and administrative involvement in medical practice and physicians' perceptions of changes in the system. The responses to these questions were measured using a five-point Likert Scale, 1=strongly disagree, 5=strongly agree.

There is a large body of literature on ways to increase response rates for mail questionnaires (Dillman, 1978; Bailey, 1987; Heberlein and Baumgartner, 1978). Several of these factors were incorporated into the design and data collection phases

of this study. Each questionnaire was addressed to a specific person. An introductory paragraph on the questionnaire explained the purpose of the survey, assured confidentiality and provided a contact name and number in the event of questions. An attractive questionnaire was mailed in a 9" x 12" envelope, accompanied by a covering letter from the sponsor and a pre-stamped return envelope. The layout of the concise form included space for additional comments. The initial mailing of the questionnaire on September 8, 1996 was timed so that it did not coincide with major holidays or events (summer vacations or the first week of school). A follow-up letter was mailed to non-respondents three weeks after the initial mailing in an effort to increase the response rate.

Sampling

Initially, questionnaires were mailed to 182 Edmonton physicians, including 60 with academic appointments, 62 general practitioners and 60 specialists. Eight of these were returned as undeliverable. One physician in the sample was deceased and three indicated that they were no longer practising. The final number of physicians to receive questionnaires totaled 170, including 58 with academic appointments, 59 general practitioners and 53 specialists. The names of physicians for the sample were selected from the 1995 Member List (Edmonton only) of the College of Physicians and Surgeons of Alberta. This is an alphabetical list of all physicians in Edmonton. The order of the names on the list is unrelated to any variable in the study design. A separate, alphabetical list of all physicians with an academic appointment, obtained from the Faculty of Medicine at the University of Alberta, was used to select the sample of academic physicians. The names of

physicians appearing on the list of those with academic appointments were removed from the College of Physicians and Surgeons list. Because of the small number of academic physicians in Edmonton (178), this group was oversampled. One in three were randomly selected beginning with the third one and selecting every third one thereafter in order to obtain the sample size needed for analysis. The remaining physicians, general practitioners and specialists, were sampled proportionately. In order to obtain a sample of 60 general practitioners from the total of 749 in the population, one in twelve physicians were randomly selected, beginning with the twelfth one and selecting every twelfth one thereafter. Sixty-two physicians were actually selected. Because of the existence of a number of specialties, care was taken to draw the sample stratum of specialists in proportion to the representation of the various specialty groups in the population. For example, Internal Medicine specialists represent 20% of the total number of specialists. If each specialty were represented proportionately and if the sample of specialists is to total 60, approximately twelve of those selected would be Internists (See Table 3.1). The average sampling fraction for the specialist group was one in thirteen. The target sample size of 60 in each of the three general strata was chosen to limit the cost of the research while ensuring a reasonable sample size by type of practice. The anticipated response rate was 50%.

TABLE 3.1

Sampling Fractions

Group	Sampling Fraction	Population	Sample Size
Academic Physicians	1 in 3	178	60
General Practitioners	1 in 12	749	62
Specialists: IM	1 in 13	157	12
Comm/Occ/Physical Medicine	1 in 14	28	2
Anesthesia	1 in 14	84	6
Surgery	1 in13	223	17
Radiology	1 in13	96	7
Pediatrics	1 in13	79	6
Laboratory Physicians	1 in 18	36	2
Psychiatry	1 in 12	101	8
Total specialists	1 in 13	804	60

Within ten days of the initial mail-out, 44 completed questionnaires (25.8%) were returned. By the time of the mailing of the follow-up letter on October 2, 1996 (which included a second copy of the questionnaire and a postage-paid envelope), 78 responses had been received (45.8% response rate). The responses returned as a result of the second mailing effectively ceased by the end of October, with the exception of one response which arrived at the end of November. The final response rate was 64% for a total of 109 responses. A further attempt to enhance the response rate involved telephone follow-up of non-respondents. This method produced no additional responses as all of those physicians contacted indicated that they were not interested or did not have the time to participate. It is assumed that

these were the major reasons for non-response, rather than a fear of expressing their views.

Respondents included forty-seven physicians with academic appointments, twenty-five general practitioners and thirty-seven specialists. Two of the physicians categorized themselves as specialists although they do not hold fellowships and were therefore classified as general practitioners on the College of Physicians and Surgeons member list and sampled accordingly. One is a medical consultant in an occupational health organization and the other is a senior resident in a surgical specialty. A Chi-square test of significance was performed on the responses by type of practice to determine the representativeness of the completed sample. With the two above mentioned physicians categorized as sampled, the Chi-square result demonstrates that the sample is not significantly different from the population at the .05 level of significance. With these two physicians categorized as they responded, that is, as specialists, the Chi-square result indicates that the completed sample is significantly different from the population at the .05 level but not at the .02 level of significance. (See Table 3.2)

TABLE 3.2

Sample Representativeness

Category	Number Sampled	Number of Responses (Freq) Expected	Freq Obs (1) (Two physicians counted as specialists)	Freq Obs (2) (Two physicians counted as GP's)
Academic	58	37.19	47	47
GP	59	37.83	25	27
Specialist	53	33.98	37	35
Total	170		109	109
X-square			7.21*	5.72**

* significant at $p < .05$, not significant at $p < 0.02$; $df = 2$

** not significant at $p < 0.05$; $df = 2$

Note: When using tests of significance, research hypotheses are usually supported by failure to reject a significant difference. However, in this case a *non*-significant difference is desirable as this indicates that the sample is *not* significantly different from the population.

For the purposes of the analysis, the results of the Chi-square test with the physicians categorized as sampled allow the data to be analyzed with the sample as a whole, representing the physician population. In order to compensate for the borderline Chi-square results when the two physicians are classified as they responded (specialists), an analysis of covariance will be conducted. The relative proportions of physicians in the three groups becomes irrelevant as this method examines the distinct groups of physicians independently. The two physicians sampled as general practitioners but self-classified as specialists will be categorized as specialists for the data analysis.

Preparation of Data for Analysis

Weighting of Sample

In order that the data could be used to make inferences about the population, it was necessary to assign weights to the three strata in the sample. While the Chi-square test described earlier confirmed that the sample was representative of the population within certain parameters, sample weighting provides an adjustment to ensure representativeness of overall estimates. In the data collection phase, physicians with academic appointments were oversampled to provide the numbers needed for analysis. This means that the sample does not reflect the proportions of each type of physician in the population. A minor under-representation of general practitioners and specialists among the respondents also indicated a need for adjustment by weighting. Academic physicians represent 10.3% of the total physician population but 43.1% of the respondents. A sample weight of 0.24 was assigned to the academic stratum, which, in effect, treats one response as though it were only approximately one-quarter of a response. Conversely, general practitioners make up 43.3% of the physician population in Edmonton but only 22.9% of the respondents in this survey. It was, therefore, necessary to allow each of these responses to carry more weight. A sample weight of 1.89 was assigned. Likewise, the specialist group, 46.6% of the population, was slightly under-represented in the sample at 33.9%, and so were given a weighting of 1.37 (See Table 3.3). All statistics calculated for the total sample were estimated using these sample weights.

TABLE 3.3

Sample Weights

GROUP	% of POPULATION	% of SAMPLE	WEIGHT
Academics	10.28	43.12	0.24
GP's	43.27	22.94	1.89
Specialists	46.64	33.94	1.37

Measurement

Data obtained with the questionnaire was further prepared for study through the use of factor analysis. Because there were twenty-seven questions on the survey instrument dealing with the opinions of physicians, there were potentially twenty-seven dependent variables involved in the analysis of the data. The benefits of factor analysis are twofold: Firstly, the combination and scaling of individual questionnaire items reduces the data to smaller, more manageable, sets of variables. Secondly, the content dimensions or themes in the data are discovered through the grouping of related questions.

Factor Analysis

Definition. Some of the concepts that are involved with this study have diverse meanings and are represented by different indicators. A number of the individual items in the questionnaire are related and measure a larger, more abstract variable or concept. All of the various aspects of a concept, when placed together, constitute a *factor*. Factor analysis refers to the statistical techniques which are used to determine the separate dimensions or factors (Bryman and Cramer, 1994, p. 256).

The use of single, related items in the survey tool allows for the measurement of the details of an attitude or perception. The subsequent grouping of these items by factor analysis permits the variables to be reduced to a smaller set, thereby creating order out of abstract thoughts (Bryman and Cramer, 1994, p. 257). This type of factor analysis, in which the relationship between the variables is examined but not explained, is known as exploratory factor analysis (Kim and Mueller, 1978a, p. 9).

Sample Size. There is virtually no consensus on what the optimal sample size should be when using factor analysis. It is generally agreed, however, that there should be more subjects than variables (Bryman and Cramer, 1994, p. 258). Conventionally, there should be twice as many subjects as variables, as is the case in this study.

Method of Factor Analysis Used. The method of factor analysis used for this data set was principal component analysis with varimax rotation. "Factor analysis is primarily concerned with describing the variation or variance which is shared by the scores of people on three or more variables" (Bryman and Cramer, 1994, p. 259). The first component extracted accounts for the largest amount of variance, the second component accounts for the next largest proportion of variance which is not related to the first component, and so on. To identify separate meaning, all of the factors produced are orthogonal, or unrelated, to each other (Bryman and Cramer, 1994, p. 261). Varimax rotation is a method of orthogonal rotation which simplifies the factor structure (Kim and Mueller, 1978, p. 87). When using principal component analysis, the first factor extracted contains the items which account for most of the variance. Therefore, most of the items tend to load on the first factor,

making the interpretation of the meaning of the factor difficult. "In order to increase the interpretability of the factors, they are rotated to maximize the loadings of some of the items" (Bryman and Cramer, 1994, p. 264).

The object of factor analysis is to reduce the number of variables in the data set to a more manageable size. Some of the variables examined in the analysis will not relate highly to any of the extracted factors and it will not be necessary to use these items. The relationship between each item and a factor is reported as a factor loading (Bryman, Cramer, 1994, p. 263). Arbitrarily, as is conventional, only factor loading values over 0.4 were interpreted. The variables included in the factor analysis were the items measured using the five-point Likert Scale (variables 13-40). In conducting the factor analysis, extraction of five factors was specifically requested. The variables which loaded onto Factor 5 produced an unreliable scale (to be discussed later) and are therefore not reported here. The factor loadings for each variable are presented in Table 3.4.

TABLE 3.4

Factor Loadings

	Loading			
Variables	Factor 1 (Impact)	Factor 2 (Perception)	Factor 3 (Monitor)	Factor 4 (Limits)
40: Admin. interference	.770			
23: Job satis. declined	.720			
24: Limited facility access	.697			
25: Referral patterns disrupted	.671			
27: Uncontrolled work hours	.668			
26: Declining income	.523			
28: Quality of care lower	.523			
34: Drug spending out-of-control		.835		
32: Technology spending out-of-cont.		.815		
33: Labour spending out-of-cont.		.808		
35: Med.decisions based on cost		.555		
31: Govt. must limit spending		.506		
14: Feedback--quality of care helpful			.876	
15: Feedback--efficiency of resource use			.839	
13: Monitoring is acceptable			.600	
37: Docs should influence policy			.436	
30: Decisions should be made with docs			.408	
18: Restriction of billing numbers				.645
20: Limit choice of practice location				.609
19: Limit earning potential of physicians				.557

Development of Scales and Reliability Testing

The factor loadings highlighted in the above table indicate those variables which loaded on a particular factor. The items which loaded above .4 on a factor were added and then averaged to form an index. Reliability was estimated for each scale to examine the scalability of these clusters of items. The items that loaded on

factors 1 to 4 proved to have relatively strong reliability (See Table 3.5). However, the four items which loaded on factor five produced a very low alpha. The items included in factor five appear unrelated in terms of their face content, indicating that the data was sufficiently reduced into four factors. These items pertained to the limiting the earning potential of physicians, the use of clinical practice guidelines to control health care expenses, the perception that administrative intervention in medical practice had increased and the acceptability of administrative decisions made by a physician-administrator. Factor five is considered unusable as a scale for the purpose of further analysis.

TABLE 3.5

Reliability of Scales

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
Alpha	.7916	.7943	.7142	.7086	.1387
Question #	23-8, 40	31-35	13-5, 30, 37	18-20	19, 21, 22, 29

"In general, the meaning of a factor is determined by the items which load most highly on it" (Bryman and Cramer, 1994, p. 265). The items combined in factor 1 deal with the perceived *impact* of recent changes to the health care delivery system in Edmonton on medical practitioners, with respect to job satisfaction, access to diagnostic and treatment facilities, continuity of referral patterns, level of income, quality of care and interference from administration. Factor 2 items identify

perceptions of physicians regarding health care costs prior to reform initiatives, specifically relating to health technology, health labour and drugs, and the need to control these costs. Tolerance for government *monitoring* and feedback regarding quality of care and the efficiency of resource use are incorporated into factor 3. Finally, factor 4 pertains to the acceptability of government-imposed *limits* on medical practice, such as the restriction of billing numbers, limiting the choice of practice location and limiting the earning potential of physicians. Scales were computed by adding the values of the items identified in each of the factors and dividing by the number of items in that factor. It was not necessary to reverse the coding of any of the items as they all loaded positively in the factor analysis.

Lastly, the binary (dummy) variables of General Practitioner, Specialist, Academic, Male, Exposure to Administration and Practiced in Country other than Canada were created for the analysis of the separate groups and for incorporation into the linear regression equation. Administrative exposure includes previous or current administrative experience and/or academic training in administration.

CHAPTER 4

RESULTS

Analysis of the survey data involved examination and statistical analysis (using SPSS) including basic descriptive statistics, correlation and linear regression analysis. The goal was to describe the nature of the responses, provide a general picture of the results and examine some possible predictors of physician attitudes in the area of physician-administration relationships.

Physicians in Edmonton

To begin the analysis, frequency distributions were calculated on each of the variables or items in the survey questionnaire. The initial purpose of this was to make an assessment of the completeness of responses and their variability. The sample of physicians analyzed includes eighty-five (85) males and twenty-four (24) females, ranging from 27 to 78 years of age. The majority of the sample falls between 38 and 51 years of age. Of the 109 respondents, 47 are physicians with academic appointments, 25 are general or family practitioners, and 37 are specialists. The sample is split exactly in half by administrative experience, with 54 currently holding an officially-designated administrative position or having had this experience in the past, and 54 having no such experience (1 missing case). Forty-one percent had practice experience in a country other than Canada. This experience could include medical education, locums and relief work or long-term, established practice experience.

Some of the items were not completely answered by a number of physicians and were therefore eliminated for the purpose of further analysis. The item seeking

information about the physicians' method of reimbursement was not answered by forty-eight (48) respondents and 24 respondents did not indicate the primary location of their practice (hospital or office). Fifty physicians responding to this survey did not answer the item asking whether their practice was solo or group.

The demographic questions were followed by a number of statements to be answered using a five-point Likert response scale (1=strongly disagree, 5=strongly agree). It is interesting to note that physician responses to most items showed rather wide variation, with responses often ranging from one extreme to the other. While this provides general validation to the assumption underlying the hypotheses to the effect that physicians will have differing opinions depending on their circumstances, there were a small number of items which found the physicians to be almost completely of "like mind". For instance, in response to the item stating that there are more administrative requirements in medical practice now than two years ago, ninety (90) physicians agreed or strongly agreed with the statement. As might be expected, 108 of the 109 respondents agreed or strongly agreed that administrative decisions should be made with physicians. Ninety-nine physicians believed that more clearly defined goals and objectives were needed for the health care system and 105 respondents were of the opinion that doctors should influence policy development. (See Appendix B for the frequency distributions on each individual variable on the questionnaire).

The remainder of the questionnaire items were answered with enough variation to warrant further analysis. These items cover the topics identified as scales by the factor analysis (limitations, impact of changes, acceptance of

monitoring and perception of prior costs) and will be investigated and described subsequently using the constructed scales.

Perceptions of Edmonton Physicians

Scores for the scaled variables were examined for the physicians as a whole and by physician group (academic, general practitioner, specialist).

TABLE 4.1

Descriptive Statistics
Physician Attitudes Toward Health Restructuring

sample		impact	limits	monitoring	perception
academic	Mean	3.5502	2.5177	3.5745	3.1191
	N	47	47	47	47
	Std. Deviation	.7423	.9601	.6870	.6375
GP	Mean	3.6743	2.0800	3.7733	3.7120
	N	25	25	25	25
	Std. Deviation	.6656	.7346	1.7526	1.2571
specialist	Mean	3.8301	2.5315	3.4324	3.4973
	N	37	37	37	37
	Std. Deviation	1.1080	1.0437	.6977	.7159
Total	Mean	3.6737	2.4220	3.5719	3.3835
	N	109	109	109	109
	Std. Deviation	.8703	.9544	1.0305	.8689

Physicians as a Whole

Impact of Recent Health Reforms. A mean score of 3.67 lies two thirds of the way between the "neutral" and "agree" responses on the Likert scale used for this questionnaire. On average then, physicians as a whole report feeling some impact of

the recent health care reforms in Alberta. The standard deviation, .87, is relatively small, showing that physicians are relatively homogenous in their response to these items. Examining the range of scores provides a clearer picture. Only twenty-five percent of physicians fall below 3.14. The twenty-fifth and seventy-fifth percentiles are 3.14 to 4.14, again demonstrating overall agreement with statements describing the impact of health reforms. The indicators of impact include declining job satisfaction, limited access to diagnostic and treatment services, disruption of referral patterns, lowered income, uncontrollable hours of work and compromised quality of care.

TABLE 4.2

Percentiles
Physicians as a Whole

Variable	25th	50th	75th
Impact	3.14	3.71	4.14
Limits	1.66	2.33	3.00
Monitoring	3.00	3.66	4.00
Perception	2.80	3.60	3.80

Government-Imposed Limits on Physicians' Practices. Overall, physicians do not agree with government-imposed limits on their practices. The average score for physicians responding to questions on this topic is 2.42, between "disagree" and "neutral". The standard deviation of .95 indicates relatively small variation in

scores. Scores between the twenty-fifth and seventy-fifth percentile range from 1.66 to 3.00 indicating that seventy-five percent of physicians are below the neutral point (3.0), in disagreement or strong disagreement to concepts such as the restriction of billing numbers or other forms of limiting physician earnings and government-imposed limitations on choice of practice location.

Monitoring of Medical Practice. Physicians as a group are in agreement (mean score = 3.57) with government monitoring of the quality of care they provide and the efficiency with which resources are used. Physician opinion is more varied in this category, as indicated by a standard deviation of 1.03. Seventy-five percent of physicians agree with monitoring (score between 3.00 and 4.00).

Perception of Health Care Costs Prior to Reform. This variable examines physicians' views on health care spending prior to the health reforms in Edmonton. Physicians as a group tend toward agreement (3.38) with statements suggesting that spending on drugs, technology and labour were out of control before reform was underway, that the government must limit health care spending and that medical decisions must be based, in part, on cost considerations. The standard deviation is .86 in this category, again confirming relative homogeneity. The twenty-fifth and seventy-fifth percentiles show that the majority of physicians range between 2.8 and 3.8. This means that there are some physicians in the "disagree" or "neutral" response zone, although responses are skewed toward agreement.

Physicians by Type of Practice

Type of practice may have an influence on perceptions and opinions of physicians. For this reason, the data was further examined with the sample divided into academic physicians, general practitioners and specialists.

TABLE 4.3

Percentiles
(Physicians Categorized by Type of Practice)

Variable	Type	25th	50th	75th
Impact	Academic	3.00	3.57	4.00
	GP	3.29	3.71	4.14
	Specialist	3.07	3.85	4.29
Limits	Academic	2.00	2.66	3.00
	GP	1.50	2.00	2.50
	Specialist	1.83	2.67	3.33
Monitoring	Academic	3.00	3.66	4.00
	GP	3.00	3.67	3.83
	Specialist	2.67	3.67	4.00
Perception	Academic	2.60	3.00	3.80
	GP	2.90	3.60	4.00
	Specialist	3.00	3.60	4.00

Academic Physicians

Impact. Physicians with academic appointments report feeling a similar impact with the health care reforms as the physicians as a whole group (3.55). However, this group is more like-minded, as the standard deviation is smaller (.74). Most academic physician scores can be found in the 3.0 to 4.0 range ("neutral" to

"agree"). Scores in this group do not reach quite as high a level of agreement as the entire physician group. Seventy-five percent of academic physicians score below 4.0 on this scale.

Limits. Scores of the academic physicians on this variable are virtually the same as those for the physicians as a whole. The average score is 2.52 with a standard deviation of .96. The majority of responses in this category can be found in the 2.0 to 3.0 range (twenty-fifth to seventy-fifth percentile). With only twenty-five percent of these physicians scoring above 3.0, it is clear that this group is generally in disagreement with government-imposed limits.

Monitoring. Academic physicians' average score for acceptance of monitoring is almost identical to that of the physician group as a whole (3.57). However, this group is much less variable in their responses than the entire physician group, as suggested by the standard deviation of .69. The twenty-fifth to seventy-fifth percentile scores lie in the range from 3.0 to 4.0, indicating neutrality or agreement to government monitoring of medical practice.

Perception. Responses from this group of physicians are more tightly centred around the neutral point than those of the whole physician group. Scores between the twenty-fifth and seventy-fifth percentiles range from 2.6 to 3.8, confirming a fairly neutral response from physicians with academic appointments in the category of health costs.

General (Family) Practitioners

Impact. Again, the average score of the general practitioners is virtually the same as that of the physician sample as a whole. Slight agreement to the indicators of

impact is shown, however, this group has less variation than the others in response to this variable (standard deviation of .66). Most general practitioners' scores fall between 3.29 and 4.14, a narrower range than for the total group or the academics. However, as for the other groups, the range of scores indicates agreement to statements expressing an impact on medical practice as a result of health reforms.

Limits. General Practitioners report a noticeably lower tolerance for government-imposed limitations on medical practice than the whole physician group or the academic physician group, with an average score of 2.08 ("disagree"). This physician sub-group is fairly closely gathered around this score with a standard deviation equal to .73. The scores of most family physicians range from 1.5 to 2.5, from disagreement to strong disagreement. Only twenty-five percent of the group score higher than 2.5.

Monitoring. This category reveals an interesting phenomenon. While general practitioners' scores reveal the highest average tolerance for monitoring of their practices (3.77), there is tremendous variation in the scores for this variable, with a standard deviation of 1.75. However, the range of responses (from the twenty-fifth to seventy-fifth percentiles) runs from 3.0 to 3.83. This points to the fact that, although the range of responses from the entire group of GP's is wide, the majority of physicians in this group are clustered in the range of slight agreement to statements indicating that the government should be able to monitor quality of care and resource use and provide feedback to the physician. Nevertheless, it may be said that the opinion of general practitioners is divided on this issue.

Perception. Scores for this variable also illustrate the wide range of opinion in the general practitioner group. Again this group has the highest average score for indicators of costs and spending perceptions of all the groups (3.71). As well, as before, this group's scores are widely varied with a standard deviation of 1.26. Scores captured between the twenty-fifth and seventy-fifth percentiles extend from 2.9 to 4.0, encompassing both disagreement and agreement.

Specialists

Impact. Scores of the specialists on this variable reveal the highest average perceived impact of health care reform. With a mean of 3.83 on this variable, the average response is close to the "agree" point on the Likert scale. There is notable variation in this group's perception of impact, with a standard deviation of 1.11. Scores captured between the twenty-fifth and seventy-fifth percentiles fall between 3.07 and 4.29 (neutral to moderately strong agreement). However, as the mean score indicates, most scores lean toward agreement with statements expressing felt impacts. Only twenty-five percent of specialists fall below the neutral point on this variable.

Limits. This group is fairly closely aligned with the physician group as a whole in their acceptance of government-imposed limitations on medical practice. The mean score of this group on this variable is 2.53, just between "disagree" and "neutral". As with the "Impact" variable, this group demonstrates considerable variability with a standard deviation of 1.04. Scores taken in between the twenty-fifth and seventy-fifth percentiles range from 1.83 to 3.33 (fairly strong disagreement to just

slightly above "neutral"). Overall, this group disagrees with the limits described by this variable.

Monitoring. The scores of this group indicate that specialists would be less tolerant of government or administrative monitoring of their practices and would be less interested in the results of such monitoring than their counterparts in the other physician groups. Although their mean score (3.43) is not a great deal lower than the mean scores of the groups, it is worthy of note that they are much more united in their opinion in this area than most of their colleagues (standard deviation equals .69). This finds most specialists scoring in the range of 2.67 to 4.0. While there remains a slight tolerance for monitoring, agreement in this category does not reach as high a level as it does for the other physician groups.

Perception. Specialist opinion regarding prior health spending levels (on drugs, technology and labour) falls within the range of opinion of other physicians. With a mean score of 3.50, specialists demonstrate a slight agreement to statements conveying the need to control health spending. Here the group is reasonably united, with a standard deviation of .72. The scores included in the range from the twenty-fifth to the seventy-fifth percentile are 3.0 to 4.0. This represents a neutral or agreeable position on this variable.

Summary: Differences Among Means

Impact. It is generally agreed to by most physicians that the recent health reforms in Edmonton have had a negative impact on medical practice. On average, though, agreement is not strong and hovers between neutrality and agreement. The specialist group reports the highest perceived impact with a range of scores approaching

strong agreement. One-way analysis of variance indicates that the differences in scores among the groups is not significant (df = 2, 106; F = 1.073; p = .35).

Limits. Disagreement is almost universally expressed by physicians in relation to government-imposed limitations on medical practice (billing number restriction, restricting choice of practice location, limiting physician income). At most, physicians score themselves in the neutral range on this variable. General practitioners' scores are notably lower on average than those of the other physicians, making them the group least likely to tolerate the imposition of these limitations. However, a one-way analysis of variance reveals that the differences in scores, among the physician groups, on this dependent variable are not significant (df = 2, 106; F = 2.129; p = .12).

Monitoring. Most scores on this variable fall above the neutral mark and indicate agreement. Physician opinion is not consolidated on this variable, most apparently among the general practitioners, although the bulk of responses fall on the side of agreement. A one-way ANOVA again shows that the differences among groups on this scale are not significant (df = 2, 106; F = .814, p = .45).

Perception of Health Care Spending. Overall, physicians tend to agree slightly with the component statements of this variable. The average score is just above "neutral" demonstrating that physicians are somewhat ready to accept that spending on health labour, technology and drugs was out of control and that the government had to limit health care spending. Scores in this category range more widely from disagreement to strong agreement within the general practitioner group, representing their differences of opinion on this variable. The one-way analysis of variance confirms

that variation in scores on this variable are, in fact, significant (df = 2, 106; F = 4.562; p = .01).

The complete results of the one-way analysis of variance are reported in Appendix C.

Correlation of Scales

An initial assessment of the relationships among the four scale variables was carried out using Pearson Correlation. The results are as reported in Table 4.4.

TABLE 4.4

Correlation Among the Variables

VARIABLE	Impact	Limits	Monitoring
Limits	-.064		
Monitoring	-.129	.004	
Perception	.010	.299*	-.024

*significant at 0.01 level (2-tailed)

The relationships among these four indices were found to be generally small and insignificant with the exception of Perception (of prior health care costs) and (acceptability of government-imposed) Limits. These two variables were found to be positively correlated, indicating that an effect will be observed when using regression analysis.

Linear Regression Analysis

Analysis of the data using regression analysis focused on the four variables or domains arising from the factor analysis, namely: "Impact", "Limits", "Perception" and "Monitoring". These variable were used as dependent variables in each of the regression equations. Independent variables entered include: administrative exposure (variable constructed from administrative experience and administrative course work), practice experience in country other than Canada, age and gender. The variable "perception" was also used as an independent variable because it describes acceptance of government rationales. It was shown in correlation to have a relationship to acceptance of limits.

The analysis was carried out using a variety of methods in order to enhance the understanding of the results. Firstly, regression was run with the sample as a whole, using the appropriate sample weights. Differences among types of practice were examined by entering the physician groups into the equation as independent binary variables (omitting the specialist group who then became the comparison). Secondly, the sample was split into the three physician groups (unweighted). This method compensates for the borderline representativeness of the sample as outlined in Chapter 3. Regression equations were run using the "enter" method for the most part. However, "stepwise" regressions were also examined to eliminate the possibility that independent variables with small effects were affecting other more important variables in the equations.

Regression Analysis: Weighted Sample

Using Binary Variables for Physician Categories

Dependent Variable: Physician Perceptions of Impact of Health Reforms

For the first of the regression equations examining "Impact", all variables were entered into the equation. The independent variables used included: perception, administrative exposure, practiced in country other than Canada, male (gender), academic physicians, general practitioners and age. The specialist category was omitted from the list and became the comparison group.

TABLE 4.5

Determinants of Perceived Impact of Health Reform

Variable	Unstandardized Coefficients		Standard Coeff	t	Sig (1-tailed)
	B	Std. Error	Beta		
(Constant)	4.334	.445		9.741	.000
1academic	-.330	.292	-.112	-1.130	.130
2 GP	-.175	.183	-.097	-.954	.171
3 admin exposure	-8.4E-02	.082	-.107	-1.027	.154
4 age	-8.6E-03	.006	-.145	-1.361	.089
5 practiced outside Canada	.474	.182	.249	2.611	.005
6 male	-.116	.211	-.056	-.551	.292
7perceptn	-3.2E-02	.088	-.035	-.360	.360

$R^2 = .122$ ($p = .06$)

Because the coefficients for academic physicians and general practitioners are negative, the results of the analysis indicate that specialists perceive the highest impact as a result of Edmonton's health care reforms. While this is consistent with

the findings from the means analysis described earlier, the type of practice did not have significant effects, controlling for the other variables in the equation. On this variable, prior exposure to administrative work or training has virtually no effect on perceived impact. As well, the effects of age and gender are both small and not significant in this equation. Prior perception of the status of health care spending is not a predictor of perceived impact in this analysis. However, practice experience in a country other than Canada has a significant and reasonably strong effect on perceived impact. Those with experience outside Canada scored about half a point higher (.474) on the scale measuring impact (higher perceived negative impact). When this analysis is run with the independent variables entered stepwise, "practiced in a country other than Canada" remained in the equation ($b = .460$, $t = 2.614$, $p = .005$, $R^2 = .094$). The coefficient for age becomes statistically significant in the stepwise model as well ($t = -2.104$, $p = .02$) although its effects remain extremely small ($b = -.0011$)

Dependent Variable: Acceptance of Limitations on Medical Practice

For this regression, all predictor variables were again entered into the equation. The independent variables used again included: perception, administrative exposure, practiced in country other than Canada, male (gender), academic physicians, general practitioners and age. The specialist category was omitted from the list as it was the comparison group for this analysis as well.

The results show that academic physicians were slightly more accepting of imposed limits than specialists (.169 of a point) and that general practitioners were predicted to fall almost half a point (.499) lower than the specialists on this scale.

Only the differences between academics and specialists are statistically significant. This is consistent with the results of the means analysis. Once again, exposure to administrative principles through work experience or education has virtually no effect on physicians' tolerance for government-imposed limits on medical practice. The effect of age is again minute, and the effects of gender are now statistically significant (t = 1.822, p = .04). The scores of males are .353 points higher than those of females. Having looked at the correlation at the outset of this analysis, it should be no surprise that perceptions regarding prior health care spending have a large and significant effect on tolerance for limits on medical practice. For each

TABLE 4.6

Determinants of Acceptance of Limitations on Medical Practice

Variables	Unstandardized Coefficients		Standard Coeff.	t	Sig. 1-tailed
	B	Std. Error	Beta		
(Constant)	.475	.408		1.162	.124
1academic	.169	.268	.055	.628	.266
2 GP	-.499	.168	-.267	-2.966	.002
3 admin exposure	-2.5E-02	.075	-.031	-.331	.371
4 age	5.6E-03	.006	.092	.974	.167
5practiced outside Canada	4.5E-02	.167	.023	.272	.393
6 male	.353	.194	.164	1.822	.036
7perceptn	.429	.081	.453	5.296	.000

$R^2 = .308$ (p = .000)

point higher on the perception scale, the score on the limits scale is .429 points higher. In other words, the more physicians perceive that spending was out of

control prior to health reform in Edmonton, the more accepting they are of the imposition of limits.

When this model is run with the variables entered stepwise, general practitioner (b = -.511, t = -3.271, p = .0005), perception (b = .414, t = 5.280, p = .000) and male (b = .422, t=2.366, p= .01) remain in the equation (R^2 = .299). Removal of the redundant independent variables confers the independent effects of each of these variables. While their coefficients are very similar to those in the previous equation (using the enter method), the reliability of the effects are greatly enhanced in the reduced form equation.

Dependent Variable: Acceptance of Monitoring of Medical Practice

For this regression, all predictor variables were entered into the equation at the same time. The independent variables used were: administrative exposure, practiced in country other than Canada, male (gender), academic physicians, general practitioners and age. The specialist category was excluded from the equation so that it could be used as the comparison group for this analysis as well.

The results of this regression analysis indicate that none of the independent variables used in this equation have a significant effect on acceptance of monitoring. Academic, administrative exposure, age, practice experience in another country and gender have small and statistically insignificant effects. The model does indicate that GP's will score about one-third of a point higher on this scale than specialists, although this coefficient is not significant. All of the requested independent variables are excluded from the equation when it is run stepwise.

TABLE 4.7

Determinants of Acceptance of Monitoring of Medical Practice

Variables	Unstandardized Coefficients		Standard Coeff.	t	Sig. 1-tailed
	B	Std. Error	Beta		
(Constant)	3.548	.455		7.799	.000
1academic	.102	.425	.025	.239	.406
2 GP	.389	.266	.154	1.466	.073
3 admin exposure	4.5E-02	.119	.041	.378	.353
4 age	-7.8E-03	.009	-.094	-.847	.200
5practiced outside Canada	4.5E-02	.264	.017	.169	.433
6 male	.265	.306	.091	.866	.194

$R^2 = .028$ ($p = .813$)

Dependent Variable: Perception of Health Care Spending Prior to Reforms

As with the previous regressions, all independent variables of academic, general practitioner, administrative exposure, age, practiced in another country and gender (male) were entered into the equation simultaneously. Again, this model uncovered little relationship between the independent and dependent variables. The coefficients indicate that academic physicians will score .409 of a point less than specialists on the perception scale, while general practitioners will score .273 of a point more than specialists. However, these results are not statistically significant. The effect of practice experience in another country is to lower a physician's score by .219 of a point on this variable while males will be .328 of a point higher than females, although, again, these findings may not be replicated by another study. Indeed, when this regression is run stepwise, all of the independent variables are

excluded from the model. Perception of prior spending in health care is determined by variables not included in this model.

TABLE 4.8

Determinants of Perception of Health Care Spending Prior to Reforms

Variables		Unstandardized Coefficients		Standard Coeff.	t	Sig. 1-tailed
		B	Std. Error	Beta		
	(Constant)	3.610	.349		10.352	.000
	1academic	-.409	.326	-.127	-1.256	.106
	2 GP	.273	.204	.138	1.338	.092
	3 admin exposure	9.2E-02	.091	.107	1.005	.159
	4 age	-7.5E-03	.007	-.115	-1.059	.146
	5practiced outside Canada	-.219	.203	-.105	-1.082	.141
	6 male	.328	.235	.144	1.398	.083

$R^2 = .067$ ($p = .300$)

Regression Analysis: Analysis of Covariance

With Unweighted Samples

The split file option in SPSS for Windows provides a way of exploring for possible interaction between type of practice and the other predictors. Identical regression equations are estimated for each of the three physician groups by type of practice. The results offer a look at the relationship of variables within groups and allows for comparisons across groups (interaction).

Dependent Variable: Perceived Impact of Health Reforms

Academic Physicians. The model for the academic physicians does little to suggest predictors for the level of impact felt by members of this group (See Table 4.9). Administrative exposure, age, gender and perception of prior health care spending have basically no effect at all on "impact" scores. Practice in a country other than Canada has a very small effect, moving academic physicians up the scale by .203 of a point. This, however, is not a statistically significant finding. Stepwise entry of the variables for this equation also shows no significant predictors.

General Practitioners. Once again, this model reveals little of predictive value for the variable "Impact". The effects of all the variables entered are small and, with the exception of age, insignificant. This simply means that this very small effect of age is likely to be found in future studies similar to this one. Age is the only variable to remain in the model when stepwise regression is used.

Specialists. This category finally provides a predictive factor as to the scores of physicians on the "impact" scale. While most of the independent variables included in the model are not significant, the effect of practice experience in a country other than Canada is both strong and significant. Specialists who have worked outside of Canada will score almost a full point higher on the "impact" scale. Once more, running the equation stepwise keeps only "practiced in country other than Canada" in the equation.

Comparison Among Groups. Comparison of the groups is interesting in order to determine if differences exist among the different types of practice. The most notable finding on this variable is that specialists with practice experience outside of

Canada can be expected to report .859 of a point higher on the impact scale than academic physicians and general practitioners. Age does have a significant effect on perceived impact for general practitioners and, although its effect is very small, it is in the opposite direction from that of the academic physicians and specialists. For general practitioners, as age increases, perceived impact decreases.

TABLE 4.9

Analysis of Covariance
Determinants of Perceived Impact of Health Reform
b (SE)

	Academic	GP	Specialist
1. Admin Exposure	.004 (.094)	-.092 (.376)	-.198 (.151)
2. Age	.003 (.015)	-.020 (.008)*	.010 (.015)
3. Practiced outside Canada	.203 (.237)	.218 (.342)	.859 (.386)*
4. Male	.046 (.302)	-.270 (.285)	.091 (.483)
5. Perception	.104 (.185)	-.085 (.101)	.052 (.265)
Constant	2.956 (.894)	5.059 (.562)	2.895 (1.104)
R^2	.04	.34	.20

* $p < .02$

Dependent Variable: Acceptance of Government-Imposed Limits

Academics. In this model, only "practiced in country other than Canada" shows up as a predictive variable. Academic physicians with experience in a country or countries other than Canada, will score .599 of a point higher on the acceptance of limits scale than those without international practice experience. In other words, academic physicians with practice experience outside of Canada will be slightly

more accepting of government-imposed limitations on medical practice. This finding is supported in the stepwise model (b = .585, t = 2.157).

General Practitioners. Administrative exposure, age, international practice experience and gender are not contributors to a general practitioner's score on the variable in this regression equation. However, perception of prior health care spending is found to have a significant and noteworthy effect on acceptance of limitations. For each point higher on the perception scale, a GP will score .39 of a point higher on the limits scale. This means that GP's who agree more strongly that costs were out of control prior to reforms will be slightly more accepting of government-imposed limitations. In the stepwise model, "perception" remains significant with b = .367.

Specialists. There is a remarkable and statistically significant effect (t = 2.592) of gender in this analysis. Male specialists will score almost a point (.958) higher than females on the scale measuring acceptance of limitations. The effect of perception of prior health care spending is even more pronounced for the specialists as for the GP's. For each point on the "perception" scale, specialists will score .576 points higher on the acceptance of limitations scale. As well, it is interesting to note that international practice experience has an opposite effect for specialists as for academic physicians and general practitioners (practice experience outside of Canada leads to lower acceptance of limits) although this coefficient does not attain statistical significance. Again, administrative exposure and age have negligible effects. The stepwise equation reveals virtually the same effects.

Comparison Among Groups. Practice experience outside of Canada has a reasonably strong effect on acceptance of limitations for academic physicians but not for the other physician groups. Perception of health care spending prior to the initiation of health care reforms has a moderate effect on the responses of both general practitioners and specialists but no effect on those of academic physicians. Gender is significant only for the specialist group.

TABLE 4.10

Analysis of Covariance
Acceptance of Limitations on Medical Practice
b (SE)

	Academic	GP	Specialist
1. Admin Exposure	.030 (.113)	-.169 (.382)	-.021 (.129)
2. Age	.028 (.018)	.008 (.008)	-.001 (.013)
3. Practiced outside Canada	.599 (.287)*	.246 (.348)	.066 (.330)
4. Male	-.034 (.366)	-.074 (.289)	.958 (.413)*
5. Perception	.106 (.224)	.390 (.103)*	.576 (.227)*
Constant	.625 (1.082)	.293 (.572)	-.182 (.945)
R^2	.15	.44	.34

* $p < .02$

Dependent Variable: Acceptance of Monitoring of Medical Practice

This model identifies nothing of a predictive nature in relation to acceptance of monitoring. All coefficients are small and statistically insignificant for all three physicians groups, giving these findings dubious replicability. It is interesting to

observe that international practice experience has opposite effects on academic physicians as on general practitioners and specialists.

Stepwise regression using these variables excludes all variables for all physician groups from the equation.

TABLE 4.11

Analysis of Covariance
Determinants of Acceptance of Monitoring of Medical Practice
b (SE)

	Academic	GP	Specialist
1. Admin Exposure	-.095 (.083)	.715 (1.16)	.016 (.103)
2. Age	.020 (.013)	.008 (.025)	-.007 (.010)
3. Practiced outside Canada	.201 (.203)	-.102 (1.058)	-.172 (.254)
4. Male	-.003 (267)	.380 (.875)	.098 (.324)
Constant	2.691 (.617)	3.776 (1.171)	3.753 (.483)
R^2	.10	.04	.03

Dependent Variable: Perception of Prior Health Care Spending

Using the independent variables age, gender (male), administrative exposure and practiced in country other than Canada, this regression was run with all variables entered simultaneously.

Academics. International practice experience is the only variable which may have a direct relationship to perception of prior health care spending. Those academic physicians who have worked outside of Canada score almost one-third of a point

(.313) higher on this scale than those who have not. This variable does not reach a t value indicating significance (t = 1.632) although the stepwise version of this equation allows this variable to remain in the equation with a boosted t value of 1.739.

General Practitioners. In this model, administrative exposure is finally shown to have a relationship to the dependent variable, in this case, perception of prior health care spending. This equation reveals that general practitioners with administrative experience or education will score .334 of a point higher than those without on this scale. This means that administrative exposure will evoke stronger agreement to items stating that health care spending was out of control prior to health care reforms in Edmonton. International practice experience will lead to lower score on this scale by .257 of a point. Finally, gender is revealed as having an effect on perception. Males score .348 of a point higher than females on this variable. As with most of the findings in the overall analysis, however, these coefficients are not statistically significant. Replication of these results cannot be expected.

Specialists. For this group of physicians, practice experience in another country will lower their agreement (by .39 of a point) to statements indicating that health care spending was out of control. Males may report .316 of a point higher agreement. Yet again, these results are not statistically significant.

Comparison Among Groups. As with the analysis for acceptance of limits, practice experience outside of Canada has an effect on the perceptions of academic physicians. Differences among groups on all other variables are not significant.

TABLE 4.12

Analysis of Covariance
Determinants of Perceptions of Health Care Spending
Prior to Reforms
b (SE)

	Academic	GP	Specialist
1. Admin Exposure	.022 (.078)	.334 (.829)	.013 (.101)
2. Age	-.003 (.012)	-.014 (.018)	.004 (.010)
3. Practiced outside Canada	.313 (.192)*	-.257 (.756)	-.390 (.248)
4. Male	.074 (.252)	.348 (.625)	.316 (.317)
Constant	3.024 (.582)	4.122 (.837)	3.200 (.473)
R^2	.07	.05	.12

* $p < .055$

Summary of Regression Analysis Findings

Impact

Specialists report the highest perceived negative impact of the recent health reforms in Edmonton. However, in attempting to uncover predictors for physician scores on this variable, very little was revealed. Practice experience in a country other than Canada is consistently related to perceived impact for specialists, increasing the score on the "impact" variable by almost a full point. While the effects of age are small, they are significant for general practioners. For GP's, perceived impact decreases as age increases. This effect is the opposite of that for specialists and academic physicians.

Limits

Physicians with academic appointments display the highest acceptance of government-imposed limitations, raised further by out-of-country practice experience. Age and prior exposure to administrative thinking have no effect on this variable. Males tend to score higher on this scale, indicating higher acceptance of limitations. The use of the split file option reveals that this is primarily attributable to male specialists. Perception of the status of prior health care spending is a strong factor in physician scores on this variable, particularly among the non-academic doctors.

Monitoring

Basically, no relationships between the variables are exposed by the models used to examine this dependent variable.

Perception

None of the results of models used to study this variable exhibited significant results. International practice experience may contribute to spending perceptions, raising scores for academic physicians and lowering them for general practitioners and specialists. These findings may not be repeated by further research.

CHAPTER 5

DISCUSSION AND CONCLUSIONS

The results of this research provide some insight into physicians' reactions to health restructuring. As well, these findings enhance understanding in the area of physician tolerance of administrative intervention and control in medical practice. At this point, it is worthwhile to summarize the results and re-examine the underlying assumptions (hypotheses) associated with this study.

Hypothesis 1

This hypothesis states that physicians will have a low level of tolerance for bureaucratic intervention in their practices. It was also postulated that physicians would tolerate various forms of intervention to varying degrees. The analysis of the data collected in this study showed this to be the case. Physicians as a whole indicated greater acceptance to monitoring of their practices, accompanied by feedback on the results of that monitoring, than to more invasive interventions such as limiting the choice of practice location or the earning potential of medical practitioners. On the whole, physicians agreed that monitoring of medical practice was acceptable and disagreed with the imposition of limitations by government. This is not surprising given that monitoring of practice patterns has little or no effect on the autonomy and freedom of choice traditionally associated with the practice of medicine. These findings are consistent with those of the *Medical Post* 1995 Survey, in which over half of the physicians responding indicated that monitoring of their practice patterns was not irritating to them. Feedback on the results of monitoring may place a physician in a defensive position but will probably be

perceived as an annoyance rather than a significant disruption. More invasive interventions, such as government control over the executive functions of medical practice (choice of practice location, hours of work, selection of clients, freedom to perform or not perform certain procedures, etc.) are contrary to the traditional expectations of physicians and would likely be seen as violations of professional rights. It is interesting to note that the responses of general practitioners in regard to monitoring vary widely. General practitioners in the community may practice in greater isolation than their colleagues functioning in academic and specialist roles. For this reason, perceptions and reactions are generated more independently. Academic and specialist physicians have the opportunity to informally discuss issues as part of their daily routines, serving to unify opinions within the group. The results of this study are consistent with Tuohy's findings (1974), in which specialists and academic physicians belonged to the group (decentralist liberals) who were more willing to accept an administrative presence in health care delivery.

Hypothesis 2

It was anticipated that a physician's type of practice (hospital versus office, group versus solo) would influence his/her acceptance of administrative involvement, with hospital-based physicians reporting a greater impact of recent health care reforms and lower tolerance for administrative control strategies. Further, it was expected that physicians working in group practice settings would indicate a higher tolerance for administrative controls. Unfortunately, questionnaire items pertaining to type and location of practice drew poor response and it was not possible to test this hypothesis directly. However, in Edmonton, hospital-based

physicians are primarily specialists. Therefore, this hypothesis may be acceptable in part on the basis that specialists report the highest level of perceived impact of health restructuring (although this result is not statistically significant). However, it is the office-based physicians, presumably general practitioners, who report the lowest level of tolerance for administratively-imposed limitations on medical practice. Conceivably, this is because they are accustomed to practicing independently of significant administrative direction.

It cannot be adequately ascertained from the data obtained by this study which physicians practice in group situations. This is an important area for examination in future research.

Hypothesis 3

As Tuohy (1974) confirmed in her research of Ontario physicians, it was expected that physicians in this study with administrative experience or training would demonstrate a greater tolerance for the exercise of administrative authority. It was further supposed that academic physicians, being familiar with administrative structure and functioning through their association with the faculty, would be more accepting of bureaucratic control than non-academic physicians. The findings of this research project did not support this hypothesis. Academic physicians reported similar perceived levels of impact, and similar tolerance levels for bureaucratically-imposed limitations on medical practice and monitoring of medical practice as the other two physician groups. Surprisingly, the effects of administrative experience and training had virtually no effect on physician attitudes pertaining to administrative control, regardless of the type of physician or the nature of the

administrative intervention. Clearly, professional socialization overwhelms administrative experience and training.

Hypothesis 4

International practice experience was hypothesized to increase the likelihood of physicians to accept administrative controls. In fact, practice experience outside of Canada has a strong effect on physicians' perceived level of impact, leading them to report greater negative impact. Analysis of covariance reveals that, in particular, the specialist group is affected in this way. For academic physicians, international practice experience is a strong predictor of agreement that health care spending was out of control prior to reforms and greater acceptance of administratively-imposed limitations on medical practice. Although international practice experience was simply coded "yes" or "no" for the purpose of analysis, respondents actually represent a wide selection of countries. Most of the physicians in this study obtained their international experience in the United States and the United Kingdom. Experience in Eastern Europe and several third world countries is also reported. Perhaps physicians who have worked in countries where universality is not a feature of the system (such as the United States) or where physicians have lost control over some of the executive functions of medical practice (such as the United Kingdom) have grown protective of these features in the Canadian health care system, thereby perceiving a greater negative impact of recent restructuring in Edmonton. In the case of physicians with academic appointments, it may also be that practice experience outside of Canada has led them to believe that health care spending was

out of control, relative to other systems. If so, this perspective may, in turn, prompt greater acceptance of bureaucratically-imposed limitations on medical practice.

Hypothesis 5

At the outset of this project, it was anticipated that as a physician's age increases, tolerance for administration and change would decline. However, the age of a physician as a predictor of perceived impact was found to be significant only for general practitioners. While the effects observed were reliable, the strength of its effect was so small that it is effectively zero. Perhaps physicians of all ages are relatively conservative by nature and socialized to uphold the traditional value of medical dominance. The conservatism that comes with increasing age may be overridden by existing physician characteristics and is, therefore, not seen to have an effect on physician attitudes and perceptions. This finding is generally consistent with the literature in which Tuohy (1974) and Goold, et. al. (1994) found no relationship between age and tolerance for administrative intervention in medical practice.

Hypothesis 6

It was presumed, at the start, that male physicians would be less tolerant of administrative intervention in medical practice than would their female colleagues. This study suggested that gender was not a factor in physician reports of the impact of health reforms. It was also found to have no effect on the acceptability of monitoring of medical practice. However, in the analysis, males, especially specialists, were observed to be significantly *more* tolerant than females of administratively-imposed limitations on physicians. This may be because the

traditional dominance of males in medicine has made female physicians somewhat defensive and more protective of their position and autonomy. This protectiveness may be exacerbated at the specialist level, where even fewer females are represented. In this sample 32% of general practitioners and 19% of specialists are female. Females, accustomed to advocating for their rights, may also carry this approach into their relationships with administrators. Another study by Burns, et. al. (1993), also revealed an increased likelihood of conflict with administration among female physicians.

Directions for Future Research

The intent of this thesis was to explore physician attitudes toward administrative intervention in medical practice, in light of the dramatic, administratively-driven health care restructuring in Edmonton. It was also hoped that this research would reveal predictors of physician attitudes in this area. The effects of administrative experience and training, age, gender, physician type, international practice experience and perceptions of health care spending prior to reforms were examined. The results of this study did identify several factors which contribute to physician acceptance of administrative control. It is clear, however, that only a limited range of the determinants have been studied here and that there are more to be discovered.

Physicians' perceptions of prior health care spending levels were found to have a strong effect on their willingness to accept the imposition of limits on their practices. It was not revealed by this research, however, how these perceptions were developed. Research by Goold, et. al. (1994) on physician attitudes toward cost

showed that the only contributor to lower resource use is a pre-existing cost-consciousness. Again, the origin of this cost-consciousness was not addressed. Because prior attitudes about cost have a strong impact on physician tolerance for administrative control, it would be very interesting and useful to study the reasons why physicians evaluate health care spending as they do.

This research project was limited by a modest sample size. While the sample size meets minimum acceptability requirements, more definitive or detailed results may be obtained from a larger study.

Unfortunately, the questionnaire items seeking information about primary practice location (hospital or office) and type of practice (group or solo) were not answered at a level adequate for study. Because physicians in group settings are more familiar with bureaucracy (of their own making), it would be worthwhile to pursue research on the effect of group practice on physician acceptance of administrative control.

The focus of this study was medical practice in a large urban area. Rural areas in Alberta have also undergone dramatic health care delivery restructuring. Because circumstances in rural areas were different from urban areas prior to health care reform, their experiences with restructuring are unique. The responses of rural physicians to questions such as the ones asked in this study would likely differ from those of the urban physicians and are, therefore, worthy of investigation.

It is also interesting to note that in the current political climate, the Edmonton region is represented solely by members of the Liberal party, while the city of Calgary, Alberta and rural Alberta is almost exclusively Progressive

Conservative. While the political views of physicians may be uniform across the province, it may be that the opinions of Edmonton physicians differ from other Alberta physicians because of underlying political ideology. The situation in Alberta suggests two possible avenues for further research. Firstly, it would be interesting to compare the responses from Edmonton physicians to those of Calgary physicians, a more Conservative city. Secondly, it would be useful to examine the relationship between political opinions and physician tolerance for government/ administrative intervention in medical practice.

The results of this study indicate that administrative experience does not have an effect on physician/administrator relationships. Administrative experience (current or past experience in an administrative role) was combined with administrative training/coursework in this study in order to have sufficient numbers for study. Administrative experience has been found by other researchers to either decrease conflict (Tuohy, 1974) or increase conflict (Burns, et. al., 1993). It may be useful to conduct future research, with a more rigid definition of administrative experience, to clarify the role of administrative experience in determining physicians' perceptions of administrative intervention in medical practice.

As well, international practice experience was loosely defined in this research as including foreign medical education, short-term and relief positions and long-term practice experience. Again, the effects of practice experience outside of Canada should be studied using a more tightly controlled definition.

Finally, this study captured the opinions of physicians during a time of tremendous change in the health care environment. The stress of the change may

have coloured the perspective of physicians who would have otherwise been more willing to accept the role of administrators in health care delivery. On the other hand, Alberta is one of the first provinces in Canada to undergo change of this magnitude. Similar health reforms are sure to follow in other provinces and regions. It is precisely for this reason that it is important to record the opinions of practitioners at the height of reform. Information such as this is important to the administrator in setting priorities and determining strategies for change. In timing future research of this nature it will be valuable to examine these issues during a stable period so underlying general attitudes toward administration can be seen clearly. However, more research is warranted on the effects of reform on medical practitioners for the benefit of other jurisdictions undergoing change.

Creating the Means for Cooperation

Health care service delivery is being restructured across Canada, as well as internationally. This reform, emphasizing the management of the business aspects of health (cost-control, effective regional service delivery), cannot proceed effectively without the cooperation of the medical profession. The dominance and autonomy of the medical profession with their traditional control over the allocation of resources, coupled with the financial crisis perceived by managers and payors in health care, is precisely the reason that a link between physicians and bureaucratic structures is so important.

In many ways, "the experience, training, and socialization of professionals act as a substitute for bureaucracy" (Daft, 1983, p. 146). It is for this reason that physicians have been successful in organizing and regularizing their own behaviour.

The increase in management control over physicians need not stifle the freedom of physicians. Medical practitioners can be brought into the hierarchical or departmental structure of a bureaucracy more easily if bureaucratic characteristics are consciously downplayed. "By debureaucratizing professional departments, the needs of professionals can be met while maintaining the advantage of bureaucratic structure for the overall organization" (Daft, 1983, p. 146). Currently, in Edmonton, medical practitioners have control over the evaluation of medical practice. Medical quality audits are handled by physician-run departments. The new Physician Assessment Review project underway through the College of Physicians and Surgeons of Alberta keeps data collection, analysis and feedback in the hands of the medical profession, although it does allow for input from non-medical individuals. Although medical quality audit and physician evaluation are physician-controlled, they are bureaucratic functions, nevertheless, and serve to provide health care administrators with useful information.

Across Canada, the trend has been to involve physicians in management roles, task forces and committees. However, these attempts to include physicians in administrative decision-making have not been entirely successful because physician input has been inconsistent. "Incentives for physicians to take away from busy practices to attend meetings, which interfere with their ability to earn an income on a fee-for-service basis, have not been put in place" (Leatt, Murray and Lemieux-Charles, 1994, p. 238). Organizational changes which actually integrate physicians into the hierarchy are more successful (Leatt, et. al., 1994). "There is sound evidence that both cost control and quality of care are enhanced by medical staff

involvement in institutional management" (Shortt and Bukowskyj, 1994, p. 8). Such integration could be approached through the use of a matrix organizational structure. This type of structure is useful when:

> "(1) environmental pressure is from two or more critical sectors...This pressure means that a balance of power is required...and that a dual-authority is needed to reflect the environmental pressure; (2) the task environment of the organization is both complex and uncertain...(3) economy of scale in the use of internal resources is needed" (Daft, 1983, p. 237).

These indicators clearly describe the current situation within the Edmonton health region. Incorporating physicians into program-planning, priority-setting, cost-control and reporting structures are ways in which the medical hierarchy can link with the administrative hierarchy of a health organization. (Shortt and Bukowskyj, 1994, p.8). Physicians in Edmonton are able, through their representatives on the various Program Councils, to have direct input into program planning and evaluation. These program councils, comprised of personnel from several health care occupational groups, fall with the organizational structure of the Capital Health Authority and allow physicians and administrators to meet and collaborate. At the governance or board level, however, physicians have been excluded because of a desire for rapid change without direct resistance from health care providers. Physicians' reactions to the restructuring in the Edmonton region have likely been heightened because of their exclusion from the planning process.

The success of physician involvement in administration can be further enhanced by reinforcing the accountability of physician-managers (Leatt, 1994). In the United Kingdom, for example, physician-managers are given budgetary control over a hospital sub-unit for staff, equipment and supplies and are accountable for

resources utilized (Capewell, 1992). This allows the physician to make resource allocation decisions in light of clinical imperatives.

Physician participation in cost-control initiatives may be achieved through the use of clinical practice guidelines. These allow overall financial limits for the use of scarce or expensive resources in individual cases to be set by physicians (Relman, 1994). These are in use in Edmonton for a limited number of case types (eg. joint replacement surgery). There may be an opportunity to expand on the use of these, as over 85% of respondents in this survey agree that they could be used to control costs.

Certainly, fostering physician participation in administrative decision-making is a useful way of building physician-administrator alliances (Eisenberg, 1986). However, as we have seen, professional socialization is strong and doctors may be resistant to change that challenges traditional patterns. Nevertheless, it may be possible to influence their understanding of administrative priorities through the use of education and feedback. Education and feedback fit the professional model of decision-making (Eisenberg, 1986, p. 126). "Given better epidemiologic and economic data and a few guidelines about how their peers practice, the doctors practicing at variance with these standards would come around quickly" (Eisenberg, 1986, p. 126). In Edmonton, seventy-one percent of physicians agree that medical decisions should be based partly on cost. Given this finding, most physicians should be receptive to information and feedback regarding the costs associated with care. "Feedback is most successful when it is offered face-to-face by a respected member of the medical community, when it is individualized for the physician, and when it

represents current, or at least recent, data" (Eisenberg, 1986, p. 112). Current peer review practices in Edmonton include feedback related to quality and outcomes of care as well as cost, such as length of stay and appropriateness of admissions (Minutes of Capital Health Authority, Human Resources Policy Accreditation Committee, Jan. 22, 1997). According to this study, peer review is acceptable to Edmonton physicians and seventy percent of respondents would accept being questioned by another physician about a medical decision. Peer review which includes a review of resource use reconciles the goal of administrators to control costs and that of physicians to maintain their autonomy over medical decisions.

Physicians responding to this study have reported a moderate tolerance for administrative monitoring of medical practice. Eisenberg states that physicians with better data and guidelines will correct variances in their practices and begin to practice within acceptable standards. As mentioned in Chapter 2, the insurance branch of Alberta Health is undertaking an initiative to monitor the billing and prescription patterns of physicians and to provide feedback, follow-up and, if necessary, remediation. Physicians in this study have indicated that feedback on the results of this type of monitoring would be useful to them. The data and peer comparisons provided to physicians by Alberta Health may assist physicians in making cost-conscious decisions within parameters accepted by their peers. Physicians will likely find remediation, more invasive than monitoring, difficult to accept.

It has been proposed that on-the-job training in management principles can assist physicians in understanding the business aspects of practice and the role of the

administrator (Louden, 1984). However, the results of this study suggest that professional socialization takes precedence over administrative training, rendering training such as this ineffective. The overarching theme in the findings of this study is that medical student selection and socialization through medical education appears to override almost all other possible predictors of physician attitudes. Medical training emphasizes the autonomous application of scientific principles to individual medical concerns. Yet, despite the scientific, individual-based focus in their training, physicians are in control of the utilization of vast resources in the health care system. As management grows and cost-consciousness becomes an integral part of health services administration, it may be that changing the pattern of socialization of physicians will be the only successful strategy in bridging the gap between physician and management perspectives. Broadening the curriculum of medical education would be helpful in giving physicians an understanding of the issues facing the system as a whole. "Physicians should be trained in organization theory to act as liaisons among all those with an interest in medicine, including patients, health care providers, insurers, politicians, economists, and administrators" (McKinlay and Stoeckle, 1988, p. 193). Further, "study in the social sciences and humanities is equally necessary...to be an informed participant in contemporary society requires understanding of its politics, history, and economics" (Association of American Medical Colleges, 1984, p. 6). A broader curriculum in medical school is not only useful to administrators in that physicians are more aware of management priorities. Education in organizational issues gives the physician a personal advantage, as well. As physicians establish a practice, "work on boards

and committees...or become members of a...decision-making body, the time spent on management courses rapidly pays off. People in the community expect a doctor to be accurate, wise, and decisive in all matters, not only medicine" (Louden, 1984, p. 35).

As Eddy points out, "The solution is not to remove the decision-making power of physicians, but to improve the capacity of physicians to make better decisions" (1990, p. 290). "Physicians should not feel they are without power; they have a great deal of it. They need not feel that they will be ignored but they should recognize that their advice will not be taken if it is inconsistent with the evidence or unacceptable to too many of the other major players" (Sutherland and Fulton, 1992, p. 211). It could be dangerous for physicians to assume that their traditional dominance and autonomy will continue and that reforms to the health care system should not affect them. "Perhaps because it resisted so successfully in the past it is likely to have to go through even more change than other health care occupations in the immediate future" (Freidson, 1985, p. 32). If so, it is important for physicians to realize that power can be transient. It belongs to those who are aware of environmental contingencies and adapt (Salancik and Pfeffer, 1977). It would be wrong for physicians to completely abandon their focus on providing the best medical care possible for their individual patients. However, it is no longer useful for them to expect to practice without regard for the circumstances of the health system as a whole. Yet, the onus is not only on physicians to adapt to an increasingly bureaucratic structure. The legitimate aspects of physician authority must be respected. "The challenge incumbent upon managers and physician

professionals is to develop a set of mutually responsive solutions to the problems of who physicians are and how they are trained, what they know and how they apply this knowledge" (O'Connor and Lanning, 1992, p. 111). The transition to a more collaborative relationship will be a lengthy process. Sound planning on the part of leaders in health services administration must involve consultation and cooperation with physicians as a large and significant stakeholder group.

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APPENDIX A

QUESTIONNAIRE AND LETTERS

University of Alberta
Edmonton, Alberta

Evaluation of Administrative Intervention in Medical Practice Among Edmonton Physicians

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Faculty of Medicine and Oral Health Sciences
University of Alberta
13-103 Clinical Sciences Building
Edmonton, AB T6G 2G3
Phone: 403 492-6407

Study number:_____

Evaluation of Administrative Intervention in Medical Practice

The purpose of this study is to research physician attitudes toward intervention from government or health care managers in medical practice, particularly in light of recent health care reforms in Alberta. One of the major benefits of this study will be a heightened understanding of the expectations of physicians concerning administration.

What you write will be kept ***strictly confidential*** and your response will not be associated with your name in any reports of this study. The number on the cover, which allows the researcher to monitor the response rate, will not be used in any way which might violate the confidentiality of the respondents.

Because of the nature of this study, your response is very important. The time you take to complete this survey will be greatly appreciated.

Approximate time for completion of questionnaire: 5-10 minutes

GENERAL INSTRUCTIONS

1. Even though you might think that you do not have all the relevant facts in regard to a particular question, your perceptions are nevertheless wanted.
2. Your unbiased response to these questions is desired, therefore, please do not discuss the questions with others before completing the questionnaire.
3. Questions regarding this study can be directed to Sarah Wall at 461-7876 or 492-6407.
4. The completed questionnaire should be mailed directly to Sarah Wall in the postage-paid envelope provided.

DEMOGRAPHICS
Please place your answer to each question in the appropriate blank.

1. Age of respondent _____ Gender _____

2. Medical school of respondent: _____

3. Years in practice: _____

4. Type of practice: solo _____ group _____hospital-based _____ office-based _____

5. General Practice _____Specialist _____(please indicate specialty)

6. I am: Geographical full-time_____Fee-for-service only_____ Totally salaried_____

7. Countries in which respondent has practiced other than Canada:
   _____

8. Have you ever taken any university level (credit) courses specifically relating to administration?
   Yes____ No_____

9. Have you ever taken any Physician Management Institute courses?
   Yes____ No_____

10. I am currently in an officially-designated administrative role (ie. program director).
    Yes____ No_____

11. I have worked in administration in the past.
    Yes____ No_____

12. On how many committees do you serve that are related to restructuring the health care system?

None_____ One_____ Two or more_____

When answering the following questions, please indicate your agreement or disagreement with the statements by selecting a response numbered from one (1), strongly disagree, to five (5), strongly agree.

Example:

Question	Strongly Disagree 1	Disagree 2	Neutral 3	Agree 4	Strongly Agree 5
I experience a high level of job satisfaction.				X	

Please respond to the questions according to your own personal opinion, rather than what you believe the opinion of your profession as a group to be.

Question	Strongly Disagree 1	Disagree 2	Neutral 3	Agree 4	Strongly Agree 5
13. Monitoring of my practice by an external authority is acceptable to me.					
14. Feedback on the results of monitoring regarding the quality of care I provide would be helpful to me.					
15. Feedback on the results of monitoring regarding the efficiency with which I use resources would be helpful to me.					
16. Government/management has a right to implement policies requiring the use of cost-effective measures (i.e. less expensive drugs).					
17. Government/administration has a right to question the costs associated with the care I provide.					
18. It is reasonable to place restrictions on the issuance of billing numbers.					
19. Limiting the earning potential of physicians is justifiable.					

Question	Strongly Disagree 1	Disagree 2	Neutral 3	Agree 4	Strongly Agree 5
20. It is acceptable to limit the choice of practice location in order to improve accessibility in underserviced areas.					
21. Clinical practice guidelines should be used to minimize health care expenses.					
22. There are more administrative interventions/requirements in my practice than 2 years ago.					
23. My job satisfaction has declined because of managerial involvement in my day-to-day decision-making.					
24. My access to diagnostic and treatment services has been limited due to pressure to provide more cost-effective care.					
25. My referral patterns have been disrupted because of system restructuring.					
26. Administrative constraints have lowered my income.					
27. I have been less able to control my hours of work.					
28. Quality of care is compromised when there is administrative influence in a medical plan of care.					
29. I would be more likely to accept a specific administrative decision if I knew that the administrator were a physician.					
30. Administrative decisions affecting patient care should be made jointly with physicians.					
31. The government must limit health care spending.					
32. Prior to current reforms, expenditures on health technology had been out of control.					
33. Prior to current reforms, expenditures on health labour were out of control.					

Question	Strongly Disagree 1	Disagree 2	Neutral 3	Agree 4	Strongly Agree 5
34. Prior to current reforms, spending on drugs was out of control.					
35. Medical decisions should be based, in part, on cost considerations.					
36. We need more clearly defined goals and objectives for the health care system.					
37. Doctors should have greater influence in the development of policy.					
38. I would be prepared to accept another physician questioning my decision regarding the treatment of my patient.					
39. Peer review is important to ensure high quality patient care.					
40. Administrative decisions frequently interfere with my practice.					

Comments:

Thank you for completing this questionnaire. Please return it to Sarah Wall in the postage-paid envelope.

Dear Sir or Madam:

I am writing to urge you to complete the enclosed questionnaire on administrative impact in medical practice. This topic is being researched as a thesis project by Sarah Wall, a graduate student in the Department of Public Health Sciences, University of Alberta. I am generally familiar with the study and believe that it will provide important information regarding the expectations of physicians, as related to health care governance and administration.

Your participation is essential, regardless of what opinion you may hold on administrative impact in medical practice. Your response to this questionnaire is necessary to ensure that all views are represented in the sample. It is precisely your views as an individual physician that are important.

I appreciate that the questionnaire does require a modest contribution of time for completion. The topic itself is complex and I feel it deserves that time and attention so we may better understand the issue. We would be pleased to update you once the analysis of results has been completed.

Thank-you for your time and cooperation. I trust we can both assist Sarah, and learn something at the same time.

Best regards,

Tom Noseworthy
Professor and Chair

October 2, 1996

Dear Physician:

Last month you received a survey questionnaire for a research project entitled "Evaluation of Administrative Intervention in Medical Practice Among Edmonton Physicians", which was accompanied by a letter from Dr. Tom Noseworthy.

I am writing to ask that you please take the time to respond to this study, if you have not already done so. Every response is important to the success of this research. Your individual opinion is essential in order that the results are reflective of physicians in Edmonton.

A copy of the questionnaire is enclosed for your convenience. This questionnaire is very short and will take less than five minutes to complete. Your participation is greatly appreciated.

If you have any questions regarding the specifics of this study, please call Sarah Wall at 461-7876 or Felicity Hey at 492-6407.

Sincerely,

Sarah Wall
MHSA Candidate

APPENDIX B

FREQUENCY DISTRIBUTIONS

administrative experience

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	no exp	54	49.5	49.5	49.5
	has exp	54	49.5	49.5	99.1
	missing	1	.9	.9	100.0
	Total	109	100.0	100.0	
Total		109	100.0		

sample stratum to which dr. belongs

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	academic	47	43.1	43.1	43.1
	GP	25	22.9	22.9	66.1
	specialist	37	33.9	33.9	100.0
	Total	109	100.0	100.0	
Total		109	100.0		

practiced in country other than Canada

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Canada only	68	62.4	62.4	62.4
	Canada plus other	41	37.6	37.6	100.0
	Total	109	100.0	100.0	
Total		109	100.0		

gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	male	85	78.0	78.0	78.0
	female	24	22.0	22.0	100.0
	Total	109	100.0	100.0	
Total		109	100.0		

age

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	27	1	.9	.9	.9
	28	1	.9	.9	1.8
	29	2	1.8	1.8	3.7
	30	3	2.8	2.8	6.4
	31	1	.9	.9	7.3
	33	8	7.3	7.3	14.7
	34	2	1.8	1.8	16.5
	35	1	.9	.9	17.4
	37	3	2.8	2.8	20.2
	38	4	3.7	3.7	23.9
	39	3	2.8	2.8	26.6
	40	3	2.8	2.8	29.4
	41	7	6.4	6.4	35.8
	42	4	3.7	3.7	39.4
	43	5	4.6	4.6	44.0
	44	5	4.6	4.6	48.6
	45	6	5.5	5.5	54.1
	46	9	8.3	8.3	62.4
	47	3	2.8	2.8	65.1
	48	3	2.8	2.8	67.9
	49	2	1.8	1.8	69.7
	50	3	2.8	2.8	72.5
	51	1	.9	.9	73.4
	52	5	4.6	4.6	78.0
	53	3	2.8	2.8	80.7
	54	1	.9	.9	81.7
	55	1	.9	.9	82.6
	56	2	1.8	1.8	84.4
	58	2	1.8	1.8	86.2
	60	1	.9	.9	87.2
	62	1	.9	.9	88.1
	63	2	1.8	1.8	89.9
	64	1	.9	.9	90.8
	67	1	.9	.9	91.7
	68	1	.9	.9	92.7
	70	2	1.8	1.8	94.5
	71	1	.9	.9	95.4
	72	1	.9	.9	96.3
	74	1	.9	.9	97.2
	78	1	.9	.9	98.2
	missing	2	1.8	1.8	100.0
	Total	109	100.0	100.0	
Total		109	100.0		

medical school of respondent

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	U of A or U of C	59	54.1	54.1	54.1
	outside of Alberta	46	42.2	42.2	96.3
	missing	4	3.7	3.7	100.0
	Total	109	100.0	100.0	
Total		109	100.0		

method of reimbursement

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	fee-for-service	50	45.9	45.9	45.9
	salaried	8	7.3	7.3	53.2
	FFS and Salary	3	2.8	2.8	56.0
	missing	48	44.0	44.0	100.0
	Total	109	100.0	100.0	
Total		109	100.0		

primary location of practice

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	hospital	66	60.6	60.6	60.6
	office	14	12.8	12.8	73.4
	both office & hosp	5	4.6	4.6	78.0
	missing	24	22.0	22.0	100.0
	Total	109	100.0	100.0	
Total		109	100.0		

practice type

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	solo	26	23.9	23.9	23.9
	group	33	30.3	30.3	54.1
	missing	50	45.9	45.9	100.0
	Total	109	100.0	100.0	
Total		109	100.0		

monitoring by external authority is acceptable

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	strongly disagree	9	8.3	8.3	8.3
	disagree	22	20.2	20.2	28.4
	neutral	37	33.9	33.9	62.4
	agree	38	34.9	34.9	97.2
	strongly agree	2	1.8	1.8	99.1
	missing	1	.9	.9	100.0
	Total	109	100.0	100.0	
Total		109	100.0		

feedback on results of monitoring would be helpful

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	strongly disagree	2	1.8	1.8	1.8
	disagree	8	7.3	7.3	9.2
	neutral	20	18.3	18.3	27.5
	agree	66	60.6	60.6	88.1
	strongly agree	11	10.1	10.1	98.2
	missing	2	1.8	1.8	100.0
	Total	109	100.0	100.0	
Total		109	100.0		

years in practice

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	3	2.8	2.8	2.8
	2	4	3.7	3.7	6.5
	3	2	1.8	1.9	8.3
	4	6	5.5	5.6	13.9
	5	5	4.6	4.6	18.5
	6	4	3.7	3.7	22.2
	7	3	2.8	2.8	25.0
	8	7	6.4	6.5	31.5
	9	2	1.8	1.9	33.3
	10	11	10.1	10.2	43.5
	11	3	2.8	2.8	46.3
	12	5	4.6	4.6	50.9
	13	1	.9	.9	51.9
	14	1	.9	.9	52.8
	15	4	3.7	3.7	56.5
	16	4	3.7	3.7	60.2
	17	3	2.8	2.8	63.0
	18	3	2.8	2.8	65.7
	19	1	.9	.9	66.7
	20	5	4.6	4.6	71.3
	22	3	2.8	2.8	74.1
	24	4	3.7	3.7	77.8
	25	4	3.7	3.7	81.5
	26	1	.9	.9	82.4
	28	1	.9	.9	83.3
	29	1	.9	.9	84.3
	30	6	5.5	5.6	89.8
	34	1	.9	.9	90.7
	35	1	.9	.9	91.7
	36	2	1.8	1.9	93.5
	40	3	2.8	2.8	96.3
	42	2	1.8	1.9	98.1
	50	1	.9	.9	99.1
	missing	1	.9	.9	100.0
	Total	108	99.1	100.0	
Missing	System Missing	1	.9		
	Total	1	.9		
Total		109	100.0		

feedback on monitoring of resource use would be helpful

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	strongly disagree	1	.9	.9	.9
	disagree	9	8.3	8.3	9.2
	neutral	23	21.1	21.1	30.3
	agree	66	60.6	60.6	90.8
	strongly agree	8	7.3	7.3	98.2
	missing	2	1.8	1.8	100.0
	Total	109	100.0	100.0	
Total		109	100.0		

gov has right to implement policies requiring cost-effectiveness

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	strongly disagree	5	4.6	4.6	4.6
	disagree	27	24.8	24.8	29.4
	neutal	20	18.3	18.3	47.7
	agree	52	47.7	47.7	95.4
	strongly agree	5	4.6	4.6	100.0
	Total	109	100.0	100.0	
Total		109	100.0		

gov has right to question costs associated with care

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	strongly disagree	2	1.8	1.8	1.8
	disagree	17	15.6	15.6	17.4
	neutral	21	19.3	19.3	36.7
	agree	64	58.7	58.7	95.4
	strongly agree	4	3.7	3.7	99.1
	missing	1	.9	.9	100.0
	Total	109	100.0	100.0	
Total		109	100.0		

reasonable to restrict billing numbers

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	strongly disagree	25	22.9	22.9	22.9
	disagree	34	31.2	31.2	54.1
	neutral	19	17.4	17.4	71.6
	agree	27	24.8	24.8	96.3
	strongly agree	3	2.8	2.8	99.1
	missing	1	.9	.9	100.0
	Total	109	100.0	100.0	
Total		109	100.0		

limiting physician earnings is justifiable

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	strongly disagree	29	26.6	26.6	26.6
	disagree	46	42.2	42.2	68.8
	neutral	14	12.8	12.8	81.7
	agree	19	17.4	17.4	99.1
	strongly agree	1	.9	.9	100.0
	Total	109	100.0	100.0	
Total		109	100.0		

acceptable to limit choice of practice location

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	strongly disagree	31	28.4	28.4	28.4
	disagree	30	27.5	27.5	56.0
	neutral	19	17.4	17.4	73.4
	agree	27	24.8	24.8	98.2
	strongly agree	2	1.8	1.8	100.0
	Total	109	100.0	100.0	
Total		109	100.0		

clinical practice guidelines should be used to minimize expenses

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	strongly disagree	6	5.5	5.5	5.5
	disagree	10	9.2	9.2	14.7
	neutral	27	24.8	24.8	39.4
	agree	54	49.5	49.5	89.0
	strongly agree	12	11.0	11.0	100.0
	Total	109	100.0	100.0	
Total		109	100.0		

more administrative requirements in my practice than 2 yrs ago

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	disagree	3	2.8	2.8	2.8
	neutral	16	14.7	14.7	17.4
	agree	42	38.5	38.5	56.0
	strongly agree	48	44.0	44.0	100.0
	Total	109	100.0	100.0	
Total		109	100.0		

job satisfaction has declined because of managerial involvement

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	disagree	18	16.5	16.5	16.5
	neutral	26	23.9	23.9	40.4
	agree	40	36.7	36.7	77.1
	strongly agree	24	22.0	22.0	99.1
	missing	1	.9	.9	100.0
	Total	109	100.0	100.0	
Total		109	100.0		

access to services limited due to pressure to decrease costs

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	strongly disagree	7	6.4	6.4	6.4
	disagree	13	11.9	11.9	18.3
	neutral	14	12.8	12.8	31.2
	agree	46	42.2	42.2	73.4
	strongly agree	28	25.7	25.7	99.1
	missing	1	.9	.9	100.0
	Total	109	100.0	100.0	
Total		109	100.0		

referral patterns disrupted d/t reform

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	strongly disagree	2	1.8	1.8	1.8
	disagree	29	26.6	26.6	28.4
	neutral	21	19.3	19.3	47.7
	agree	30	27.5	27.5	75.2
	strongly agree	25	22.9	22.9	98.2
	missing	2	1.8	1.8	100.0
	Total	109	100.0	100.0	
Total		109	100.0		

administrative constraints have lowered my income

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	strongly disagree	2	1.8	1.8	1.8
	disagree	20	18.3	18.3	20.2
	neutral	32	29.4	29.4	49.5
	agree	36	33.0	33.0	82.6
	strongly agree	19	17.4	17.4	100.0
	Total	109	100.0	100.0	
Total		109	100.0		

less able to control hrs of work

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	disagree	16	14.7	14.7	14.7
	neutral	16	14.7	14.7	29.4
	agree	41	37.6	37.6	67.0
	strongly agree	35	32.1	32.1	99.1
	missing	1	.9	.9	100.0
	Total	109	100.0	100.0	
Total		109	100.0		

quality of care compromised with admin influence

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	strongly disagree	1	.9	.9	.9
	disagree	8	7.3	7.3	8.3
	neutral	31	28.4	28.4	36.7
	agree	44	40.4	40.4	77.1
	strongly agree	25	22.9	22.9	100.0
	Total	109	100.0	100.0	
Total		109	100.0		

accept admin decision if admin is doc

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	strongly disagree	1	.9	.9	.9
	disagree	7	6.4	6.4	7.3
	neutral	19	17.4	17.4	24.8
	agree	57	52.3	52.3	77.1
	strongly agree	25	22.9	22.9	100.0
	Total	109	100.0	100.0	
Total		109	100.0		

admin decisions should be made with phys

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	neutral	1	.9	.9	.9
	agree	32	29.4	29.4	30.3
	strongly agree	76	69.7	69.7	100.0
	Total	109	100.0	100.0	
Total		109	100.0		

gov must limit h.c. spending

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	strongly disagree	1	.9	.9	.9
	disagree	14	12.8	12.8	13.8
	neutral	21	19.3	19.3	33.0
	agree	61	56.0	56.0	89.0
	strongly agree	12	11.0	11.0	100.0
	Total	109	100.0	100.0	
Total		109	100.0		

health technol spending out of control

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	strongly disagree	10	9.2	9.2	9.2
	disagree	30	27.5	27.5	36.7
	neutral	20	18.3	18.3	55.0
	agree	43	39.4	39.4	94.5
	strongly agree	6	5.5	5.5	100.0
	Total	109	100.0	100.0	
Total		109	100.0		

health labour spending out of control

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	strongly disagree	5	4.6	4.6	4.6
	disagree	30	27.5	27.5	32.1
	neutral	26	23.9	23.9	56.0
	agree	41	37.6	37.6	93.6
	strongly agree	6	5.5	5.5	99.1
	missing	1	.9	.9	100.0
	Total	109	100.0	100.0	
Total		109	100.0		

spending on drugs out of control

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	strongly disagree	3	2.8	2.8	2.8
	disagree	23	21.1	21.1	23.9
	neutral	29	26.6	26.6	50.5
	agree	47	43.1	43.1	93.6
	strongly agree	6	5.5	5.5	99.1
	missing	1	.9	.9	100.0
	Total	109	100.0	100.0	
Total		109	100.0		

med decisions should be partly based on cost

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	strongly disagree	4	3.7	3.7	3.7
	disagree	8	7.3	7.3	11.0
	neutral	19	17.4	17.4	28.4
	agree	72	66.1	66.1	94.5
	strongly disagree	5	4.6	4.6	99.1
	missing	1	.9	.9	100.0
	Total	109	100.0	100.0	
Total		109	100.0		

need more clearly defined goals/obj

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	disagree	3	2.8	2.8	2.8
	neutral	7	6.4	6.4	9.2
	agree	63	57.8	57.8	67.0
	strongly agree	36	33.0	33.0	100.0
	Total	109	100.0	100.0	
Total		109	100.0		

docs should influence policy dev

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	neutral	3	2.8	2.8	2.8
	agree	38	34.9	34.9	37.6
	strongly agree	67	61.5	61.5	99.1
	missing	1	.9	.9	100.0
	Total	109	100.0	100.0	
Total		109	100.0		

accept another doc questioning decision

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	strongly disagree	3	2.8	2.8	2.8
	disagree	10	9.2	9.2	11.9
	neutral	19	17.4	17.4	29.4
	agree	64	58.7	58.7	88.1
	strongly agree	12	11.0	11.0	99.1
	missing	1	.9	.9	100.0
	Total	109	100.0	100.0	
Total		109	100.0		

peer review ensures quality care

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	strongly disagree	1	.9	.9	.9
	disagree	4	3.7	3.7	4.6
	neutral	11	10.1	10.1	14.7
	agree	64	58.7	58.7	73.4
	strongly agree	29	26.6	26.6	100.0
	Total	109	100.0	100.0	
Total		109	100.0		

admin decisions interfere with practice

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	disagree	25	22.9	22.9	22.9
	neutral	28	25.7	25.7	48.6
	agree	41	37.6	37.6	86.2
	strongly agree	15	13.8	13.8	100.0
	Total	109	100.0	100.0	
Total		109	100.0		

APPENDIX C

ANOVA

Descriptives

			N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
							Lower Bound	Upper Bound		
impact	sample stratum to which dr. belongs	academic	47	3.5502	.7423	.1083	3.3322	3.7681	2.14	5.00
		GP	25	3.6743	.6656	.1331	3.3995	3.9490	2.29	5.00
		specialist	37	3.8301	1.1080	.1822	3.4607	4.1995	2.14	9.00
		Total	109	3.6737	.8703	8.3E-02	3.5084	3.8389	2.14	9.00
limits	sample stratum to which dr. belongs	academic	47	2.5177	.9601	.1400	2.2358	2.7996	1.00	5.00
		GP	25	2.0800	.7346	.1469	1.7768	2.3832	1.33	4.00
		specialist	37	2.5315	1.0437	.1716	2.1836	2.8795	1.00	4.33
		Total	109	2.4220	.9544	9.1E-02	2.2408	2.6032	1.00	5.00
monitoring	sample stratum to which dr. belongs	academic	47	3.5745	.6870	.1002	3.3728	3.7762	2.00	5.00
		GP	25	3.7733	1.7526	.3505	3.0499	4.4968	1.00	9.00
		specialist	37	3.4324	.6977	.1147	3.1998	3.6651	1.67	4.67
		Total	109	3.5719	1.0305	9.9E-02	3.3762	3.7675	1.00	9.00
perception	sample stratum to which dr. belongs	academic	47	3.1191	.6375	9.3E-02	2.9320	3.3063	2.00	4.00
		GP	25	3.7120	1.2571	.2514	3.1931	4.2309	2.20	9.00
		specialist	37	3.4973	.7159	.1177	3.2586	3.7360	1.40	5.00
		Total	109	3.3835	.8689	8.3E-02	3.2185	3.5484	1.40	9.00

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
impact	Between Groups	1.623	2	.811	1.073	.346
	Within Groups	80.177	106	.756		
	Total	81.800	108			
limits	Between Groups	3.799	2	1.899	2.129	.124
	Within Groups	94.566	106	.892		
	Total	98.365	108			
monitoring	Between Groups	1.734	2	.867	.814	.446
	Within Groups	112.953	106	1.066		
	Total	114.687	108			
perception	Between Groups	6.461	2	3.231	4.562	.013
	Within Groups	75.069	106	.708		
	Total	81.530	108			